

Elektrotechnický ústav SAV



**Správa o činnosti organizácie SAV
za rok 2021**

Bratislava
január 2022

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1. Základné údaje o organizácii

1.1. Kontaktné údaje

Názov: Elektrotechnický ústav SAV

Riaditeľ: RNDr. Vladimír Cambel, DrSc.

1. zástupca riaditeľa: Ing. Milan Ťapajna, PhD.

2. zástupca riaditeľa: Ing. Ján Fedor, PhD

Vedecký tajomník: RNDr. Marianna Španková, PhD

Predseda vedeckej rady: RNDr. Dagmar Gregušová, DrSc.

Členovia Snemu SAV: doc. Ing. Fedor Gömöry, DrSc., Ing. Milan Ťapajna, PhD.

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Názvy a adresy organizačných zložiek a detašovaných pracovísk:

Organizačné zložky: nie sú

Detašované pracoviská:

- **Oddelenie mikroelektroniky a senzoriky**
Vrbovská cesta 110, 921 01 Piešťany

Vedúci organizačných zložiek a detašovaných pracovísk:

Organizačné zložky: nie sú

Detašované pracoviská:

- **Oddelenie mikroelektroniky a senzoriky**
Mgr. Bohumír Zaťko, PhD

Členovia Snemu SAV za organizačné zložky:

nie sú

Typ organizácie: Príspevková od roku 1993

1.2. Údaje o zamestnancoch

Tabuľka 1a Počet a štruktúra zamestnancov

Štruktúra zamestnancov	K	K		K do 35 rokov		F	P	T	O
		M	Ž	M	Ž				
Celkový počet zamestnancov	115	85	30	24	5	113	81.49	63.54	8
Vedeckí pracovníci	60	52	8	10	1	58	45.03	44.03	0
Odborní pracovníci VŠ (výskumní a vývojoví zamestnanci ¹)	26	19	7	12	4	26	12.31	12.31	0.3
Odborní pracovníci VŠ (ostatní zamestnanci ²)	5	2	3	0	0	5	4.4	0.5	1
Odborní pracovníci ÚS	17	9	8	2	0	17	14.15	6.7	6.7
Ostatní pracovníci	7	3	4	0	0	7	5.6	0	0

¹ odmeňovaní podľa 553/2003 Z.z., príloha č. 5² odmeňovaní podľa 553/2003 Z.z., príloha č. 3 a č. 4

K – kmeňový stav zamestnancov v pracovnom pomere k 31.12.2021 (uvádzať zamestnancov v pracovnom pomere, vrátane riadnej materskej dovolenky, zamestnancov pôsobiacich v zahraničí, v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiacich v zastupiteľských zborech)

F – fyzický stav zamestnancov k 31.12.2021 (bez riadnej materskej dovolenky, zamestnancov pôsobiacich v zahraničí v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiacich v zastupiteľských zborech)

P – celoročný priemerný prepočítaný počet zamestnancov

T – celoročný priemerný prepočítaný počet riešiteľov projektov

O – celoročný priemerný prepočítaný počet obslužného personálu podieľajúceho sa na riešení projektov (technikov, laborantov, projektových manažérov a pod.) mimo zamestnancov v administratívnej, správnej a údržbovej budove, upratovačiek, vodičov a pod.

M, Ž – muži, ženy

Tabuľka 1b Štruktúra vedeckých pracovníkov (kmeňový stav k 31.12.2021)

Rodová skladba	Pracovníci s hodnosťou				Vedeckí pracovníci v stupňoch		
	DrSc.	CSc./PhD.	prof.	doc.	I.	II.a.	II.b.
Muži	9	40	0	4	9	31	12
Ženy	2	6	0	1	2	5	1

Tabuľka 1c Štruktúra pracovníkov podľa veku a rodu, ktorí sú riešiteľmi projektov

Veková štruktúra (roky)	< 31		31-35		36-40		41-45		46-50		51-55		56-60		61-65		> 65	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Muži	16	10.0	10	7.2	10	10.0	6	5.7	3	2.8	3	3.0	2	2.0	9	7.5	16	8.9
Ženy	3	0.3	2	1.8	2	2.0	1	1.0	0	0.0	2	2.0	1	1.0	4	4.0	2	1.2

A - Prepočet bez zohľadnenia úväzkov zamestnancov

B - Prepočet so zohľadnením úväzkov zamestnancov

Tabuľka 1d Priemerný vek zamestnancov organizácie k 31.12.2021

	Kmeňoví zamestnanci	Vedeckí pracovníci	Riešitelia projektov
Muži	48.1	49.8	46.8
Ženy	54.1	51.8	47.6
Spolu	49.7	50.0	46.9

1.3. Iné dôležité informácie k základným údajom o organizácii a zmeny za posledné obdobie (v zameraní, v organizačnej štruktúre a pod.)

2. Vedecká činnosť

2.1. Domáce projekty

Tabuľka 2a Domáce projekty riešené v roku 2021

ŠTRUKTÚRA PROJEKTOV	Počet		Čerpané financie (€)					
	A	B	A				B	
			Zo zdrojov SAV		Z iných zdrojov		Zo zdrojov SAV	Z iných zdrojov
			Spolu	Pre organizáciu	Spolu	Pre organizáciu		
1. Projekty VEGA	15	1	-	-	138305	138305	-	3709
2. Projekty APVV	8	9	-	-	417944	322878	-	134730
3. Projekty EŠIF/OP ŠF	0	1	-	-	-	-	20744	20744
4. Projekty SASPRO, MoRePro	1	0	44388	44388	-	-	-	-
5. Iné projekty (FM EHP, Vedecko-technické projekty, na objednávku rezortov a pod.)	1	0	2000	2000	-	-	-	-

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

Tabuľka 2b Domáce projekty podané v roku 2021

Štruktúra projektov	Miesto podania	Organizácia je nositeľom projektu	Organizácia sa zmluvne podieľa na riešení projektu
1. Účasť na nových výzvach APVV r. 2021	-	4	1
2. Projekty výziev EŠIF podané r. 2021	Bratislava		
	Regióny		

2.2. Medzinárodné projekty

2.2.1. Medzinárodné projekty riešené v roku 2021

Tabuľka 2c Medzinárodné projekty riešené v roku 2021

ŠTRUKTÚRA PROJEKTOV	Počet		Čerpané financie (€)					
	A	B	A				B	
			Zo zdrojov SAV		Z iných zdrojov		Zo zdrojov SAV	Z iných zdrojov
			Spolu	Pre organizáciu	Spolu	Pre organizáciu		
1. Projekty Horizont 2020 a Horizont Európa	0	5	-	-	-	-	8036	178055
2. Projekty ERA.NET, ESA, JRP	0	2	-	-	-	-	23356	13133
3. Projekty COST	0	3	-	-	-	-	-	-
4. Projekty EUREKA, NATO, UNESCO, CERN, IAEA, IVF, ERDF a iné	0	1	-	-	-	-	-	15902
5. Projekty v rámci medzivládnych dohôd	1	0	-	-	-	-	-	-
6. Bilaterálne projekty MAD, Mobility, Open Mobility	0	0	-	-	-	-	-	-
7. Bilaterálne projekty ostatné	6	0	9000	9000	5491	5491	-	-
8. Podpora MVTS z národných zdrojov okrem SAV (APVV a iné)	0	0	-	-	-	-	-	-

9. SAS-UPJŠ ERC Visiting Fellowship Grants	0	0	-	-	-	-	-	-
10. Iné projekty	0	0	-	-	-	-	-	-

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

2.2.2. Medzinárodné projekty Horizont Európa podané v roku 2021

Tabuľka 2d Počet projektov Horizont Európa v roku 2021

	A	B
Počet podaných projektov Horizont Európa	0	1

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

Údaje k domácim a medzinárodným projektom sú uvedené v Prílohe B.

2.2.3. Zámery na čerpanie Európskych štrukturálnych a investičných fondov v ďalších výzvach

2.3. Výber najvýznamnejších výsledkov vedeckej práce organizácie v roku 2021

Slúži aj na výber výsledkov do výročnej správy SAV. Každý výsledok má byť charakterizovaný stručným, všeobecne zrozumiteľným popisom – maximálne 1000 znakov + 1 obrázok; bibliografický údaj uvádzajte rovnako ako v zozname publikačnej činnosti, vrátane IF. Nadpis by mal vystihnúť prínos a význam výsledku – podľa možnosti by nemal byť zredukovaný na názov/nadpis publikačného výstupu.

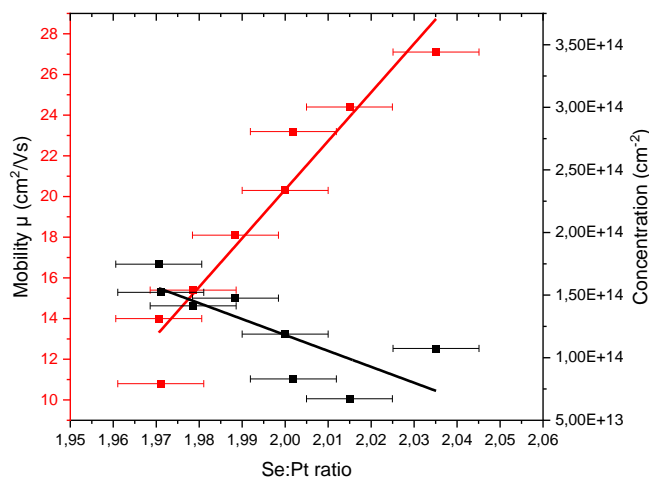
2.3.1. Výsledky na báze základného výskumu

Názov: Výroba a príprava veľmi tenkých PtSe₂ vrstiev

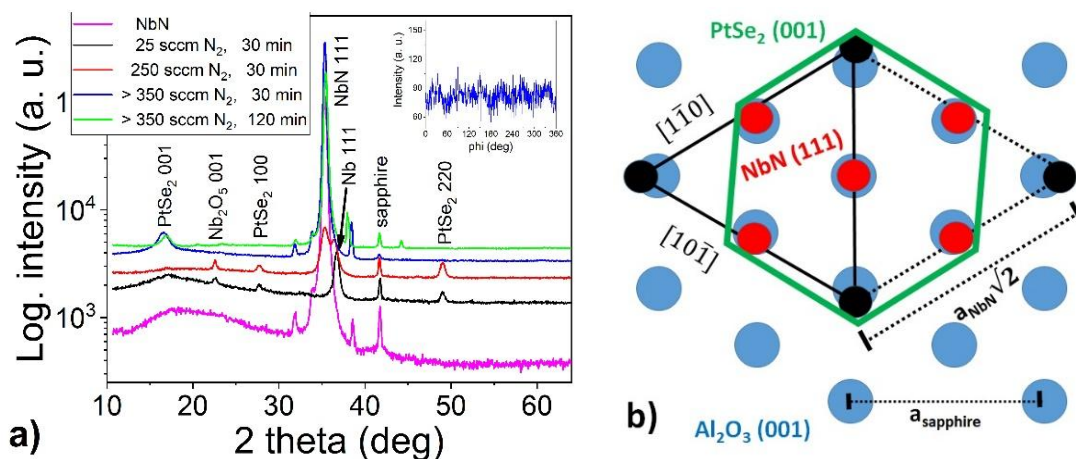
Riešitelia: M. Sojková (zodp. riešiteľ)

Projekt: VEGA 2/0059/21 a APVV-19-0365 (zodp. riešiteľ M. Hulman)

Veľmi tenké vrstvy PtSe₂ sú sľubnými kandidátmi na aplikácie vo vysokorýchlostnej elektronike, spintronike a pre fotodetektory. Epitaxné vrstvy PtSe₂ boli pripravené na c-zafírovej podložke pomocou jednozónovej selenizácie vopred naprášených platinových vrstiev. Filmy vykazujú znaky usporiadania v rovine na veľké vzdialenosti pripomínajúce epitaxný rast. Použitie zvýšenej teploty viedlo k zvýšenej kryštalinite a lepším elektrickým vlastnostiam¹. Okrem toho sme identifikovali pomer Se : Pt ako parameter riadiaci pohyblivosť nosičov náboja vo vrstvách. Pohyblivosť sa zvyšuje viac ako dvakrát, keď sa pomer mení v úzkom intervale okolo hodnoty 2². Očakáva sa, že spojenie polovodiča so supravodičom na jednej platforme poskytne zariadeniam lepší výkon. Pripravili sme tenké vrstvy PtSe₂ na povrchu NbN. Zistili sme, že parametre selenizácie zachovávajú chemickú a štrukturálnu integritu filmov PtSe₂ aj NbN. Orientáciu PtSe₂ možno ovplyvniť zmenou rýchlosti prietoku dusíka cez reakčnú komoru³.



Obr. 1 Pomer Se: Pt vs. pohyblivosť nosičov náboja a koncentrácia nosičov PtSe₂ vrstiev pripravených selenizáciou 1 nm hrubej vrstvy Pt pri 550 °C počas 30 minút s rôznymi prietokmi dusíka.



Obr. 2. (a) XRD záznam NbN vrstvy a PtSe₂ vrstiev pripravených selenizáciou 3 nm hrubej vrstvy platiny pri 550 °C na NbN podložke s použitím rôznych prietokov dusíka. (b) Schematický náčrt zobrazujúci usporiadanie vrstiev PtSe₂ na NbN/zafirovom substráte.

Publikácie:

- SOJKOVÁ, Michaela** – DOBROČKA, Edmund – HUTÁR, Peter – TAŠKOVÁ, Valéria – PRIBUSOVÁ SLUŠNÁ, Lenka – STOKLAS, Roman – PÍŠ, I. – BONDONI, F. – MUNNIK, F. – HULMAN, Martin. High carrier mobility epitaxially aligned PtSe₂ films grown by one-zone selenization. In *Applied Surface Science*, 2021, vol. 538, no. 147936. (2020: 6.707 – IF, Q1 – JCR, 1.295 – SJR, Q1 – SJR, karentované – CCC). (2021 – Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2020.147936> Typ: ADCA
- HRDÁ, Jana – TAŠKOVÁ, Valéria – VOJTEKOVÁ, Tatiana – PRIBUSOVÁ SLUŠNÁ, Lenka – DOBROČKA, Edmund – PÍŠ, I. – BONDINO, F. – HULMAN, Martin – SOJKOVÁ, Michaela**. Tuning the charge carrier mobility in few-layer PtSe₂ films by Se: Pt ratio. In *RSC Advances*, 2021, vol. 11, no. 27292. (2020: 3.361 – IF, Q2 – JCR, 0.746 – SJR, Q1 – SJR, karentované – CCC). (2021 – Current Contents). ISSN 2046-2069. Dostupné na: <https://doi.org/10.1039/d1ra04507e> Typ: ADCA
- SOJKOVÁ, Michaela** – HRDÁ, Jana – VOLKOV, S. – VÉGSO, Karol – SHAJI, Ashin –

VOJTEKOVÁ, Tatiana – PRIBUSOVÁ SLUŠNÁ, Lenka – GÁL, Norbert – DOBROČKA, Edmund – ŠIFFALOVIČ, Peter – ROCH, T. – GREGOR, Maroš – HULMAN, Martin. Growth of PtSe₂ few-layer films on NbN superconducting substrate. In Applied Physics Letters, 2021, vol. 119, no. 1, 013101. (2020: 3.791 – IF, Q2 – JCR, 1.182 – SJR, Q1 – SJR, karentované – CCC). (2021 – Current Contents). ISSN 0003-6951. Dostupné na: <https://doi.org/10.1063/5.0053309> Typ: ADCA

2.3.2. Výsledky aplikačného typu

Názov: Analýza použiteľnosti vysokoteplotných supravodičov

Kontraktový výskum pre GSI Darmstadt (Nemecko)

Riešitelia: F. Gömöry, T. Kujovič, M. Mošat', R. Ries, E. Seiler, M. Solovyov

V GSI Darmstadt prebiehajú práce na návrhu nového urýchľovača, v ktorom by na vinutie pulzných magnetov bol použitý kábel z pások na báze vysokoteplotného supravodiča. Takýto kábel s architektúrou typu CORT/CORC, v ktorej pásy sledujú helikoidálnu dráhu, by mal byť schopný preniesť elektrický prúd 30 kA pri pracovnej teplote 30 K, pričom jeho vonkajší priemer by nemal prekročiť 10 mm. Kolegovia z GSI nás požiadali o vypracovanie štúdie, ktorá by analyzovala možnosti použitia takéhoto kábla aj v iných oblastiach, predovšetkým v elektroenergetike. V prvej etape sme spracovali literárnu rešerš, v ktorej sme zhrnuli doterajšie výsledky využitia vysokoteplotných supravodičov v 11 rozličných aplikáciách [1]. Analýza ukázala možné výhody použitia kábla CORT v supravodivom obmedzovači skratových prúdov: ľahké prispôsobenie prenosovej kapacity popri zachovaní rovnomerného zaťaženia jednotlivých pások. Výsledkom štúdie je identifikovanie hlavných vedeckých otázok a návrh postupu výskumu, nevyhnutne potrebného k ich zodpovedaniu a následnému overeniu myšlienky na úrovni laboratórneho modelu [2].

[1] F. Gömöry, T. Kujovič, M. Mošat', R. Ries, E. Seiler: HTS Applications Study: Literature Study, Bratislava, September 2021

[2] F. Gömöry, T. Kujovič, M. Mošat', R. Ries, E. Seiler, M. Solovyov: HTS Applications Study: Superconducting Fault Current Limiter from CORT, Bratislava, December 2021

2.3.3. Výsledky na báze medzinárodnej spolupráce

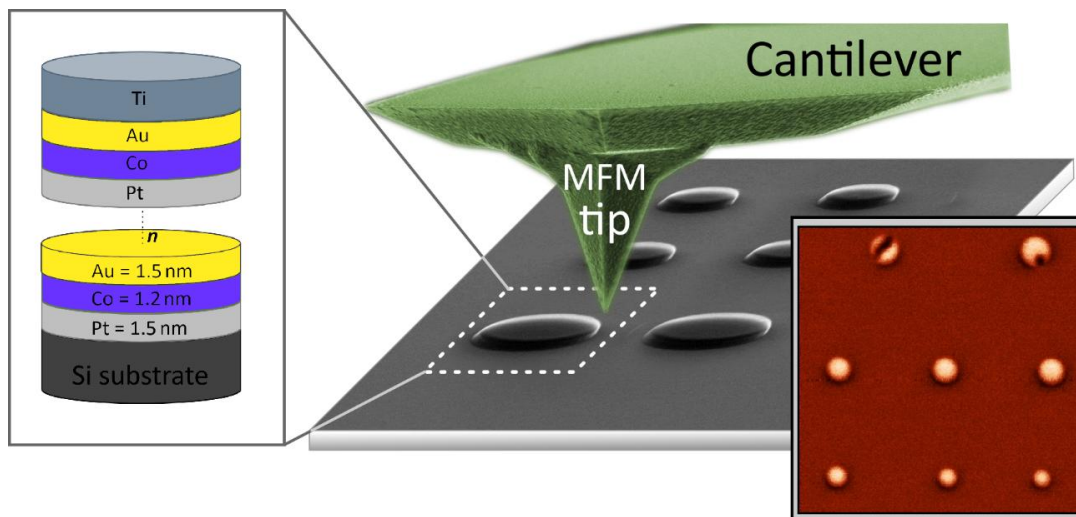
Názov: Magnetické skyrmióny v nanodiskoch

Riešitelia: M. Mruczkiewicz, I.V. Vetrova, J. Šoltýs, T. Šcepka, J. Dérier, R. Stoklas, V. Cambel

Projekt: APVV-19-0311 (M. Mruczkiewicz), APVV-16-0068 (V. Cambel), VEGA 2/0160/19 (J.Šoltýs), Era.Net RUS Plus 18-57-76001 (M. Mruczkiewicz)

Magnetické skyrmióny sú topologicky chránené spinové textúry, ktoré aktuálne priťahujú značnú pozornosť tak v základnej ako aj v aplikovanej fyzike. S kyrmióny sme pozorovali v nanodiskoch vyrobených pomocou elektrónovej litografie a leptania. Nanodisky boli zložené z veľmi tenkej multivrstvy Pt/Co/Au, ktorá vykazuje medzifázovú Dzyaloshinskii-Moriya interakciu a kolmú magnetickú anizotropiu [1, 2]. V takýchto submikrometrových diskoch s priemerom 150–525 nm sme skúmali stabilizáciu rôznych magnetických stavov, ako sú stavy s jednou doménou, skyrmiónový stav a tiež doménové štruktúry pripomínajúce tvar podkovy a červíkov. Ukázali sme, že šesť opakovaní multivrstvy Pt/Co/Au postačuje na stabilizáciu stavu skyrmiónu vo vnútri nanodisku pri izbovej teplote. Proces vytvorenia skyrmiónu v nanodiskoch demonštrujeme mikromagnetickými simuláciami [3]. Zistili sme, že pole generované magnetickým hrotom výrazne ovplyvňuje stav magnetizácie nanodiskov a vedie k tvorbe skyrmiónov. Simulácia vysvetľuje vývoj magnetického stavu v disku počas jeho skenovania magnetickým silovým mikroskopom a potvrdzuje možnosť vzniku skyrmiónu. Kľúčovým prechodom v tomto procese je vytvorenie

medzistavu magnetickej domény v tvare podkovy.



Obr. Schematické znázornenie viacvrstvého nanodisku pozostávajúceho z ultratenkých Co vrstiev umiestnených medzi dvoma rôznymi ťažkými kovmi: Au, Pt (vľavo). Pole viacvrstvových diskov sa skenuje MFM hrotom (v strede) a ich magnetický stav sa počas skenovania mení (vpravo).

Publikácie:

- VETROVA, Iuliia** – ZELEN, M. – ŠOLTÝS, Ján – GUBANOV, V.A. – SADOVNIKOV, A.V. – ŠČEPKA, Tomáš – DÉRER, Ján – STOKLAS, Roman – CAMBEL, Vladimír – MRUCZKIEWICZ, Michal**. Investigation of self-nucleated skyrmion states in the ferromagnetic/nonmagnetic multilayer dot. In Applied Physics Letters, 2021, vol. 118, no. 212409. (2020: 3.791 – IF, Q2 – JCR, 1.182 – SJR, Q1 – SJR, karentované – CCC). (2021 – Current Contents). ISSN 0003-6951. Dostupné na: <https://doi.org/10.1063/5.0045835> Typ: **ADCA**
- Vetrova, Iu.V., Šoltýs, J., Zelen, M., Sadovnikov, A.V., Gubanov, V.A., Ščepka, T., Dérier, J., Stoklas, R., Cambel, V., and Mruczkiewicz, M.: Investigation of the self-nucleated skyrmion states inside the ferromagnetic/non-magnetic multilayer dot. In: Sol-SkyMag 2021, virtual.
- ZELEN, M.** – VETROVA, Iuliia** – LI, X. – ZHOU, Yi – ŠOLTÝS, Ján – GUBANOV, V.A. – SADOVNIKOV, A.V. – ŠČEPKA, Tomáš – DÉRER, Ján – STOKLAS, Roman – CAMBEL, Vladimír – MRUCZKIEWICZ, Michal**. Skyrmion formation in nanodisks using magnetic force microscopy tip. In Nanomaterials-Basel, 2021, vol. 11, p. 2627. (2020: 5.076 – IF, Q1 – JCR, 0.919 – SJR, Q1 – SJR, karentované – CCC). (2021 – Current Contents, WOS, SCOPUS). ISSN 2079-4991. Dostupné na: <https://doi.org/10.3390/nano11102627> Typ: **ADMA**

2.4. Publikačná činnosť (zoznam je uvedený v prílohe C)

Tabuľka 2e Štatistika vybraných kategórií publikácií

PUBLIKAČNÁ A EDIČNÁ ČINNOSŤ	Počet v r. 2021/ doplňky z r. 2020
1. Vedecké monografie a monografické štúdie vydané v domácich vydavateľstvách (AAB, ABB)	0 / 0
2. Vedecké monografie a monografické štúdie vydané v zahraničných vydavateľstvách (AAA, ABA)	0 / 0
3. Odborné monografie, vysokoškolské učebnice a učebné texty vydané v domácich vydavateľstvách (BAB, ACB, CAB)	0 / 0
4. Odborné monografie a vysokoškolské učebnice a učebné texty vydané v zahraničných vydavateľstvách (BAA, ACA, CAA)	0 / 0
5. Kapitoly vo vedeckých monografiách vydaných v domácich vydavateľstvách (ABD)	0 / 0
6. Kapitoly vo vedeckých monografiách vydaných v zahraničných vydavateľstvách (ABC)	1 / 0
7. Kapitoly v odborných monografiách, vysokoškolských učebniciach a učebných textoch vydaných v domácich vydavateľstvách (BBB, ACD)	0 / 0
8. Kapitoly v odborných monografiách, vysokoškolských učebniciach a učebných textoch vydaných v zahraničných vydavateľstvách (BBA, ACC)	0 / 0
9. Vedecké práce registrované v Current Contents Connect (ADCA, ADCB, ADDA, ADDB)	65 / 2
10. Vedecké práce registrované vo Web of Science Core Collection alebo Scopus (ADMA, ADMB, ADNA, ADN B)	8 / 1
11. Vedecké práce v ostatných domácich časopisoch (ADFA, ADFB)	0 / 0
12. Vedecké práce v ostatných zahraničných časopisoch (ADEA, ADEB)	1 / 0
13. Vedecké práce v domácich recenzovaných zborníkoch (AEDA)	0 / 0
14. Vedecké práce v zahraničných recenzovaných zborníkoch (AECA)	0 / 0
15. Publikované príspevky na domácich vedeckých konferenciách (AFB, AFD)	13 / 0
16. Publikované príspevky na zahraničných vedeckých konferenciách (AFA, AFC)	1 / 0
17. Vydané periodiká evidované v CCC, WoS Core Collection, SCOPUS	1
18. Ostatné vydané periodiká	0
19. Zostavovateľské práce knižného charakteru (FAI)	0 / 0
20. Preklady vedeckých a odborných textov (EAJ)	0 / 0
21. Heslá v odborných terminologických slovníkoch a encyklopédiách (BDA, BDB)	0 / 0
22. Recenzie v časopisoch a zborníkoch (EDI)	0 / 0

Evidujú sa len tie práce zamestnancov a doktorandov, v ktorých je uvedená afiliácia k organizácii

Tabuľka 2f Štatistika vedeckých prác podľa kvartilu vedeckého časopisu

Kvartil vedeckého časopisu	Q1	Q2	Q3	Q4	Spolu
Podľa IF z r. 2020 (zdroj JCR) <i>Počet článkov / doplnky</i>	22 / 1	29 / 0	14 / 1	5 / 0	70 / 2
Podľa SJR z r. 2020 (zdroj Scimago) <i>Počet článkov / doplnky</i>	44 / 1	23 / 1	2 / 0	4 / 1	73 / 3

Tabuľka 2g Ohlasy

OHLASY	Počet v r. 2020/ doplnky z r. 2019
Citácie vo WOS (1.1, 2.1)	1245 / 19
Citácie v SCOPUS (1.2, 2.2)	71 / 17
Citácie v iných citačných indexoch a databázach (9, 10, 3.2, 4.2)	0 / 0
Citácie v publikáciách neregistrovaných v citačných indexoch (3, 4, 3.1, 4.1)	4 / 3
Recenzie na práce autorov z organizácie (5, 6, 7, 8)	0 / 0

2.5. Aktívna účasť na vedeckých podujatiach

Tabuľka 2h Vedecké podujatia

Prednášky a vývesky na medzinárodných vedeckých podujatiach	23
Prednášky a vývesky na národných vedeckých podujatiach	27

2.6. Vyžiadané prednášky

Ak boli príspevky publikované, sú súčasťou prílohy C, kategória (AFC, AFD, AFE, AFF, AFG, AFH)

2.6.1. Vyžiadané prednášky na medzinárodných vedeckých podujatiach

1. **Gregušová, D., Pohorelec, O., Ľapajna, M., Blaho, M., Gucmann, F., Stoklas, R., Hasenöhrl, S., Laurenčíková, A., Šichman, P., Haščík, Š., and Kuzmík, J.:** Polarization engineering in GaN-based normally-off transistors. In: 2021 Inter. Meeting for Future of Electron Devices. Kansai Virtual 2021.
2. **Gömöry, F., Šouc, J., and Mošat', M.:** Formation of hot spots in coated conductors during static and dynamic DC loading. In: 16th European Conference on Applied Superconductivity - EUCAS 2021. Moskva, virtual. Vyžiadaná výveska.
3. **Solovyov, M., Kucharovič, M., Pardo, E., and Gömöry, F.:** Demagnetizing of magnetic cloak by use of dynamic magnetoresistance. In: 16th European Conference on Applied Superconductivity - EUCAS 2021. Moskva, virtual.
4. **Varga, M.:** Diamond nanostructures and composites for optics and photonics. In: 13th International Conference on Nanomaterials - Research & Application In: NANOCON 2021, Brno.

2.6.2. Vyžiadané prednášky na národných vedeckých podujatiach

1. **Chromik, Š., Španková, M., Dobročka, E., Vanko, G., Hutár, P., Vojteková, T., Gregor, M., Cordier, Y., and Pécz, B.:** MoS₂ two dimensional system prepared by PLD method on different substrates. In: Progress in applied surface, interface and thin film science – solar renewable energy news 2021 - SURFINT – SREN VII. Smolenice - virtual 2021.

2. **Zat'ko, B., Hrubčín, L., Šagátová, A., Boháček, P., Ivanov, O.M., Sekáčová, M., Kováčová, E., Gurov, Y.B., and Skuratov, V.A.:** Study of the pulse height defect of 4H-SiC Schottky barrier detectors in heavy ion detection. In: 26th International Conference Applied Physics of Condensed Matter - APCOM 2021. Štrbské Pleso 2021.

2.6.3. Vyžiadané prednášky na významných vedeckých inštitúciách

2.7. Patentová a licenčná činnosť na Slovensku a v zahraničí v roku 2021

2.7.1. Vynálezy, na ktoré bol v roku 2021 udelený patent

a) na Slovensku

Názov vynálezu: Zariadenie na rovnomerné opracovanie povrchu sypkých materiálov v plazme

Číslo patentu: 288857

Dátum priority: 1.7.2020

Majiteľ / spolumajiteľ: Ústav informatiky SAV, Ústav polymérov SAV, Elektrotechnický ústav SAV

Pôvodcovia vynálezu: Hrkút Pavol, Čaplovič Igor, Novák Igor, Gaži Štefan

b) v zahraničí

2.7.2. Vynálezy prihlásené v roku 2021

a) na Slovensku

Názov vynálezu: Zložená refrakčná šošovka a spôsob jej výroby

Číslo prihlášky: PP50014-2021

Dátum priority: 23.3.2021

Majiteľ / spolumajiteľ: Elektrotechnický ústav SAV/Integra TDS, s.r.o.

Pôvodcovia vynálezu: Zápražný Zdenko, M. Maco

Názov vynálezu: Veľkoplošný detector jadrových častíc a žiarenia s podložkou, spôsob jeho výroby a zapojenie obsahujúce veľkoplošný detektor

Číslo prihlášky: PP50017-2021

Dátum priority: 31.3.2021

Majiteľ / spolumajiteľ: Elektrotechnický ústav SAV

Pôvodcovia vynálezu: Zat'ko Bohumír, Dubecký František

b) v iných krajinách ako prioritná prihláška

c) PCT

d) EP

e) v iných krajinách v rámci tzv. národnej fázy po PCT, resp. po validácii EP

2.7.3. Úžitkové vzory na Slovensku

a) prihlásené v roku 2021

Názov UV: Veľkoplošný detector jadrových častíc a žiarenia s podložkou, spôsob jeho výroby a zapojenie obsahujúce veľkoplošný detektor

Číslo UV: PUV50028-2021

Dátum prihlášky: 31.3.2021

Majiteľ / spolumajiteľ UV: Elektrotechnický ústav SAV

Pôvodcovia UV: Zaľko Bohumír, Dubecký František

b) udelené v roku 2021

2.7.4. Realizované vynálezy

a) predané patenty resp. prihlášky vynálezov (v prípade úplnej zmeny majiteľa patentu)

b) predané licencie (v prípade že majiteľom ostáva organizácia SAV)

Finančný prínos pre organizáciu SAV v roku 2021 a súčet za predošlé roky sa neuvádzajú, ak je zverejnenie v rozpore so zmluvou súvisiacou s realizáciou patentu.

2.8. Účasť expertov na hodnotení národných projektov (APVV, VEGA a iných)

Tabuľka 2i Experti hodnotiaci národné projekty

Meno pracovníka	Typ programu/projektu/výzvy	Počet hodnotených projektov
Gregušová Dagmar	APVV	2
	VEGA	3
Hulman Martin	VEGA	1
Kuzmík Ján	VEGA	2
Osvald Jozef	VEGA	1
Šoltýs Ján	VEGA	1
Vanko Gabriel	VEGA	1

2.9. Účasť na spracovaní hesiel do encyklopédie Beliana

Počet autorov hesiel: 0

2.10. Recenzovanie knižných publikácií a príspevkov vo vedeckých časopisoch

Tabuľka 2j Počet vypracovaných recenzií na vedecké monografie, vedecké štúdie a zborníky

Meno pracovníka	Ved. monografie		Príspevky v časopisoch			Zborníky	
	Domáce	Zahra-ničné	WoS, SCOPUS	Iné databázy	Ostatné	Domáce	Zahra-ničné
Gömöry Fedor	0	0	23	0	0	0	0
Gregušová Dagmar	0	0	11	0	0	0	0
Hudec Boris	0	0	3	0	0	0	0
Chromik Štefan	0	0	5	0	0	0	0

Izsák Tibor	0	0	6	0	0	0	0
Kováč Pavol	0	0	21	0	0	0	0
Kuzmík Ján	0	1	7	0	0	0	0
Moško Martin	0	0	1	0	0	0	0
Mruczkiewicz Michal	0	0	8	0	0	0	0
Osvald Jozef	0	0	8	0	0	0	0
Pardo Enric	0	0	14	0	0	0	0
Rosová Alica	0	0	2	0	0	0	0
Skákalová Viera	0	0	2	0	0	0	0
Sojková Michaela	0	0	4	0	0	0	0
Soloviov Mykola	0	0	12	0	0	0	0
Ťapajna Milan	0	0	38	0	0	0	0
Vanko Gabriel	0	0	1	0	0	1	0
Varga Marian	0	0	2	0	0	0	0
Zaťko Bohumír	0	0	3	0	0	0	0
Spolu	0	1	171	0	0	1	0

2.11. Iné informácie k vedeckej činnosti.

Na tomto mieste treba upozorniť, že vedecké výsledky ústavu súvisia nielen s počtom publikácií, citácií a patentov, ale aj so spoluprácami s univerzitami, vedeckými ústavmi a firmami, projektovou štruktúrou a s personálnym obsadením ústavu, resp. s vylepšením tejto štruktúry v poslednom období.

Za posledný rok nám narástol počet publikácií na 65 (v r. 2019 ich bolo 45, v r. 2020 – 52) a zároveň nám narástol aj stredný impakt časopisov týchto publikácií – dosiahol hodnotu 4,5, čo je náš historický rekord. Tieto čísla sú pozoruhodné najmä v súvislosti s generačnou výmenou, ktorá prebieha na ústave, ako aj v súvislosti s pandémiou, keďže náš ústav je zameraný na experimentálnu prácu a prístup do laboratórií bol počas r. 2021 značne obmedzený po dobu asi 5 mesiacov.

Čo sa týka spoluprác na Slovensku, intenzívne sme spolupracovali najmä s FÚ SAV, čo prinieslo množstvo nových vedeckých výsledkov v oblasti 2D materiálov. Tiež sme začali intenzívne spolupracovať s FÚ SAV a ÚExF SAV v oblasti kvantových technológií a so slovenskými firmami (Bizzcom, Infinium) v oblasti technológie memristorov, s ktorými aktuálne podávame spoločné projekty (IPCEI projekt už bol podaný v r. 2021). Vedecké výsledky v týchto oblastiach by sa mali dostaviť v nasledujúcich rokoch.

3. Doktorandské štúdium, iná pedagogická činnosť a budovanie ľudských zdrojov pre vedu a techniku

3.1. Údaje o doktorandskom štúdiu

Tabuľka 3a Počet doktorandov v roku 2021

Forma	Počet k 31.12.2021				Počet doktorandov po doktorandskej skúške		Počet ukončených doktorantúr v r. 2021					
							Ukončenie z dôvodov					
	celkový počet		z toho novoprijatí				ukončenie úspešnou obhajobou		predčasné ukončenie		neúspešné ukončenie	
M	Ž	M	Ž	M	Ž	M	Ž	M	Ž	M	Ž	
Denná zo zdrojov SAV	11	4	3	0	10	2	3	0	0	0	0	0
Denná z iných zdrojov	0	0	0	0	3	0	3	0	0	0	0	0
Externá	1	2	0	0	1	2	0	0	0	0	0	0
Spolu	12	6	3	0	14	4	6	0	0	0	0	0
Z toho zahraničných	4	1	2	0	4	1	2	0	0	0	0	0
Súhrn	18		3		18		6		0		0	

Uvádzajte len doktorandov organizácie ako externej vzdelávacej inštitúcie.

Riadok „Spolu“ je súčtom troch riadkov nad ním. Každá bunka v riadku „Súhrn“ vyjadruje celkový počet doktorandov (mužov a žien spolu), čiže je súčtom príslušných dvoch buniek z riadku „Spolu“. V stĺpci „Počet doktorandov po doktorandskej skúške“ sa uvádza počet doktorandov, ktorí počas roku 2021 boli aspoň 1 deň doktorandami po doktorandskej skúške. Sú číselne zahrnutí aj v predchádzajúcich stĺpcoch.

Pod predčasným ukončením rozumieme ukončenie bez obhajoby dizertačnej práce pričom doktorand neabsolvoval celú štandardnú dĺžku štúdia. Pod neúspešným ukončením rozumieme ukončenie bez úspešnej obhajoby dizertačnej práce, pričom študent absolvoval celú štandardnú dĺžku štúdia.

3.2. Zmena formy doktorandského štúdia

Tabuľka 3b Počty preradení z dennej formy na externú a z externej na dennú

Pôvodná forma	Denná z prostriedkov SAV	Denná z prostriedkov SAV	Denná z iných zdrojov	Denná z iných zdrojov	Externá	Externá
Nová forma	Denná z iných zdrojov	Externá	Denná z prostriedkov SAV	Externá	Denná z prostriedkov SAV	Denná z iných zdrojov
Počet	1	0	0	0	0	0

3.3. Zoznam doktorandov, ktorí ukončili doktorandské štúdium úspešnou obhajobou

Tabuľka 3c Menný zoznam ukončených doktorandov v roku 2021 úspešnou obhajobou

Meno doktoranda	Forma DŠ	Mesiac, rok nástupu na DŠ	Mesiac, rok obhajoby	Číslo a názov študijného odboru	Meno a organizácia školiteľa	Fakulta udeľujúca vedeckú hodnotu
MSc. Asef Ghabeli Juybari	interné štúdium hrazené z prostriedkov SAV	9 / 2018	8 / 2021	5.2.48 fyzikálne inžinierstvo	Mgr. Enric Pardo PhD., Elektrotechnický ústav SAV	Fakulta elektrotechniky a informatiky STU

3.4. Zoznam doktorandov, ktorí ukončili doktorandské štúdium úspešnou obhajobou v nadštandardnej dĺžke štúdia

Tabuľka 3d Menný zoznam ukončených doktorandov v roku 2021 úspešnou obhajobou v nadštandardnej dĺžke štúdia

Meno doktoranda	Forma DŠ	Mesiac, rok nástupu na DŠ	Mesiac, rok obhajoby	Číslo a názov študijného odboru	Meno a organizácia školiteľa	Fakulta udeľujúca vedeckú hodnotu
MSc. Anang Dadhich	interné štúdium hrazené z prostriedkov SAV	9 / 2017	8 / 2021	5.2.48 fyzikálne inžinierstvo	Mgr. Enric Pardo PhD., Elektrotechnický ústav SAV	Fakulta elektrotechniky a informatiky STU
Mgr. Peter Hutár	interné štúdium hrazené z prostriedkov SAV	9 / 2016	8 / 2021	4.1.3 fyzika kondenzovaných látok a akustika	Dr. rer. nat. Martin Hulman, Elektrotechnický ústav SAV	Fakulta matematiky, fyziky a informatiky UK
Ing. Tomáš Kujovič	interné štúdium hrazené z iných zdrojov	9 / 2017	7 / 2021	5.2.48 fyzikálne inžinierstvo	doc. Ing. Fedor Gömöry DrSc., Elektrotechnický ústav SAV	Fakulta elektrotechniky a informatiky STU
Ing. Marek Mošat'	interné štúdium hrazené z iných zdrojov	9 / 2017	12 / 2021	5.2.48 fyzikálne inžinierstvo	Ing. Ján Šouc CSc., Elektrotechnický ústav SAV	Fakulta elektrotechniky a informatiky STU
Ing. Rastislav Ries	interné štúdium z iných zdrojov	9 / 2017	7 / 2021	5.2.48 fyzikálne inžinierstvo	doc. Ing. Fedor Gömöry DrSc., Elektrotechnický ústav SAV	Fakulta elektrotechniky a informatiky STU

3.5. Uplatnenie absolventov doktorandského štúdia

Tabuľka 3e Prehľad uplatnenia absolventov doktorandského štúdia

Počet absolventov PhD. štúdia v roku 2021 (obhajoba leto 2021)	z toho koľkí sa zamestnali vo výskume (SAV, univerzity, rezortné výskumné ústavy)	z toho koľkí sa zamestnali v praxi mimo výskum, kde využívajú svoju kvalifikáciu	z toho koľkí sa zamestnali v praxi, kde nevyužívajú svoju kvalifikáciu	z toho koľkí boli nejaký čas nezamestnaní
6	6	0	0	0

Zoznam interných a externých doktorandov je uvedený v prílohe A.

3.6. Medzinárodné doktorandské štúdium

Tabuľka 3f Počet študentov v medzinárodných programoch doktorandského štúdia

Cotutelle	Co-direction	Iné	Zahraniční doktorandi štátne občianstvo/počet
0	0	0	IRN/3, RUS/3, IND/1

Zahraniční doktorandi sú doktorandi v dennej alebo externej forme štúdia, ktorí sú občanmi iných krajín. Doktorandi školení v rámci Cotutelle alebo Co-direction sa do posledného stĺpca nezapočítavajú.

3.7. Zoznam študijných odborov, na ktoré má ústav uzatvorenú rámcovú dohodu, s uvedením VŠ

Tabuľka 3g Zoznam študijných odborov, na ktoré má ústav uzatvorenú rámcovú dohodu, s uvedením univerzity/vysokej školy a fakulty, kde sa doktorandský študijný program uskutočňuje

Názov študijného odboru (ŠO)	Číslo ŠO	Názov doktorandského študijného programu	Doktorandské štúdium uskutočňované na (univerzita/vysoká škola a fakulta)
fyzika kondenzovaných látok a akustika	4.1.3	Fyzika kondenzovaných látok a akustika	Fakulta matematiky, fyziky a informatiky UK
elektronika	5.2.13	elektronika a fotonika	Fakulta elektrotechniky a informatiky STU
fyzikálne inžinierstvo	5.2.48	Fyzikálne inžinierstvo	Fakulta elektrotechniky a informatiky STU

Názov a číslo študijného odboru vyplňte/vyberte podľa aktuálne platného zoznamu študijných odborov <https://www.portalvs.sk/sk/studijne-odbory?from=menu1>.

Do 31. 8. 2023 študujú študenti doktorandského štúdia zaradení do študijných programov podľa zoznamu MŠVVaŠ, platného do 1. 9. 2019. Pre týchto študentov je potrebné napísať názov programu ako voľný text do stĺpca 3.

Tabuľka 3h Účasť na pedagogickom procese

Menný prehľad pracovníkov, ktorí boli menovaní do odborových komisií pre doktorandské štúdium	Menný prehľad pracovníkov, ktorí pôsobili ako členovia vedeckých rád univerzít, správnych rád univerzít a fakúlt	Menný prehľad pracovníkov, ktorí získali vyššiu vedeckú, pedagogickú hodnosť alebo vyšší kvalifikačný stupeň
RNDr. Vladimír Cambel, DrSc. (elektronika)	doc. Ing. Fedor Gömöry, DrSc. (Elektrotechnická fakulta ŽU)	MSc. Anang Dadhich, PhD. (IIb)
doc. RNDr. Edmund Dobročka, CSc. (fyzikálne inžinierstvo)	doc. Ing. Fedor Gömöry, DrSc. (Fakulta matematiky, fyziky a informatiky UK)	Mgr. Juraj Feilhauer, PhD. (IIa)
Ing. Karol Fröhlich, DrSc. (elektronika)	doc. Ing. Jozef Novák, DrSc. (Fakulta elektrotechniky a informatiky STU)	MSc. Asef Ghabeli Juybari, PhD. (IIb)
doc. Ing. Fedor Gömöry, DrSc. (fyzikálne inžinierstvo)		Ing. Boris Hudec, PhD. (IIa)
RNDr. Dagmar Gregušová, DrSc. (elektronika)		Mgr. Peter Hutár, PhD. (IIb)
Ing. Ján Kuzmík, DrSc. (teoretická elektrotechnika)		Ing. Tomáš Kujovič, PhD. (IIb)
Ing. Ján Kuzmík, DrSc. (elektronika)		Mgr. Agáta Laurenčíková, PhD. (IIa)
doc. RNDr. Martin Moško, DrSc. (fyzika kondenzovaných látok a akustika)		Ing. Marek Mošať, PhD. (IIb)
doc. RNDr. Martin Moško, DrSc. (chemická fyzika)		Ing. Marián Precner, PhD. (IIa)
doc. RNDr. Martin Moško, DrSc. (teoretická elektrotechnika)		Ing. Rastislav Ries, PhD. (IIb)
doc. RNDr. Martin Moško, DrSc. (fyzikálne inžinierstvo)		Ing. Marian Varga, PhD. (IIa)
doc. Ing. Jozef Novák, DrSc. (elektronika)		MSc. Anang Dadhich, PhD. (PhD., Fakulta elektrotechniky a informatiky STU)
Ing. Milan Ťapajna, PhD. (elektronika)		MSc. Asef Ghabeli Juybari, PhD. (PhD., Fakulta elektrotechniky a informatiky STU)
Ing. Gabriel Vanko, PhD. (elektronika)		Mgr. Peter Hutár, PhD. (PhD., Fakulta elektrotechniky a informatiky STU)
		Ing. Tomáš Kujovič, PhD. (PhD., Fakulta elektrotechniky a informatiky STU)
		Ing. Marek Mošať, PhD. (PhD., Fakulta elektrotechniky a informatiky STU)
		Ing. Rastislav Ries, PhD. (PhD., Fakulta elektrotechniky a informatiky STU)

3.8. Údaje o pedagogickej činnosti

Tabuľka 3i Prednášky a cvičenia vedené v roku 2021

PEDAGOGICKÁ ČINNOSŤ	Prednášky		Cvičenia a semináre	
	doma	v zahraničí	doma	v zahraničí
Počet prednášateľov alebo vedúcich cvičení	2	0	0	0
Celkový počet hodín v r. 2021	10	0	0	0

Prehľad prednášateľov predmetov a vedúcich cvičení, s uvedením názvu predmetu, úväzku, katedry, fakulty, univerzity/vysokej školy je uvedený v prílohe D.

Tabuľka 3j Aktivity pracovníkov na VŠ

1.	Počet pracovníkov, ktorí pôsobili ako vedúci alebo konzultanti diplomových a bakalárskych prác	6
2.	Počet vedených alebo konzultovaných diplomových a bakalárskych prác	7
3.	Počet pracovníkov, ktorí pôsobili ako školitelia doktorandov (PhD.)	13
4.	Počet školených doktorandov (aj pre iné inštitúcie)	15
5.	Počet oponovaných dizertačných a habilitačných prác	4
6.	Počet pracovníkov, ktorí oponovali dizertačné a habilitačné práce	4
7.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby DrSc. prác	1
8.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby PhD. prác	7
9.	Počet pracovníkov, ktorí pôsobili ako členovia komisií, resp. oponenti v inauguračnom alebo habilitačnom konaní na vysokých školách	0

3.9. Iné dôležité informácie k pedagogickej činnosti

Práca so študentami

Spolupráca na výučbe predmetu Nanotechnológie a príprava vysokoškolskej učebnice pre študentov v odbore Fyzikálne inžinierstvo FEI STU (pracovníci Lobotka, Moško, Precner).

· Tradične Ústav zamestnáva VŠ študentov formou VPS. Ich práca často vyústi do prípravy semestrálnych, bakalárskych a diplomových prác. V r. 2021 ich bolo 8.

F. Gömöry (Sirotková, Godár FEI STU)

F. Gucmann (Hrubíšák diplomant FEI STU)

Š. Chromík (Bennár diplomant FEI STU)

J. Šoltýs (Vajda diplomant FEI STU)

M. Sojková (V. Tašková diplomantka FEI STU)

M. Ťapajna (M. Sobota, diplomant FEI STU)

B. Zát'ko (J. Pogányová FEI STU)

Zvyšovanie teoretickej a praktickej zdatnosti PhD študentov

Vedeckí pracovníci Ústavu (E. Dobročka, A. Rosová, J. Šoltýs, M. Ťapajna) viedli prednáškový kurz pre PhD študentov Methods for Materials Diagnostics 2021-2022.

Kurz prebiehal v angličtine, zúčastnili sa ho aj doktorandi z iných ústavov, FMFI UK aj FEI STU.

M. Moško, A. Mošková, J. Tóvik viedli prednáškový kurz pre PhD študentov Vybrané kapitoly z fyziky pevných látok.

Prebiehal kurz Academic Writing, prednášala externistka prof. Ljuba Bachárová.

4. Medzinárodná vedecká spolupráca

4.1. Medzinárodné vedecké podujatia

4.1.1. Medzinárodné vedecké podujatia, ktoré organizácia SAV organizovala v roku 2021 alebo sa na ich organizácii podieľala, s vyhodnotením vedeckého a spoločenského prínosu podujatia

4.1.2. Medzinárodné vedecké podujatia, ktoré usporiada organizácia SAV v roku 2022 (anglický a slovenský názov podujatia, miesto a termín konania, meno, telefónne číslo a e-mail zodpovedného pracovníka)

4.1.3. Počet pracovníkov v programových a organizačných výboroch medzinárodných konferencií

Tabuľka 4a Programové a organizačné výbory medzinárodných konferencií

Meno pracovníka	Programový	Organizačný	Programový i organizačný
Gömöry Fedor	1	1	1
Chromik Štefan	0	0	1
Novák Jozef	0	0	2
Spolu	1	1	4

4.2. Členstvo a funkcie v medzinárodných orgánoch

4.2.1. Členstvo a funkcie v medzinárodných vedeckých spoločnostiach, úniách a národných komitétach SR

doc. Ing. Fedor Gömöry, DrSc.

Applied Superconductivity Educational Foundation (ASEF) (funkcia: člen výboru)

European Society for Applied Superconductivity (funkcia: člen výboru)

Ing. Pavol Kováč, DrSc.

Academic Committee for International Congress on Advanced Materials (funkcia: člen)

4.3. Účasť expertov na hodnotení medzinárodných projektov (EÚ RP, ESF a iných)

Tabuľka 4b Experti hodnotiaci medzinárodné projekty

Meno pracovníka	Typ programu/projektu/výzvy	Počet hodnotených projektov
Gömöry Fedor	COST	12
Vanko Gabriel	NCN Poland	10

4.4. Najvýznamnejšie prínosy MVTŠ ústavu vyplývajúce z mobility a riešenia medzinárodných projektov a iné informácie k medzinárodnej vedeckej spolupráci

F. Gömöry - člen Review Panel COST Open Call OC-2020-1. Review Panel - Advancing knowledge on physics, materials and chemical processes (23/03/2021 - 25/03/2021, online, Belgium)

G. Vanko - člen hodnotiacej komisie Expert Panel ST3 pre výzvy Národného Vedeckého Centra Poľska (NCN Poland)

Prehľad údajov o medzinárodnej mobilite pracovníkov organizácie je uvedený v Prílohe E.

Prehľad a údaje o medzinárodných projektoch sú uvedené v kapitole 2 a Prílohe B.

5. Koncepcia dlhodobého rozvoja organizácie

5.1. Odporúčania z posledného pravidelného hodnotenia organizácií SAV (akreditácie)

5.2. Hlavné body Akčného plánu organizácie a stav ich plnenia

5.3. Aktualizácia Akčného plánu organizácie v roku 2021

Základné princípy práce na EIÚ sú akademická sloboda, spoločné využívanie a dostupnosť prístrojov, zodpovednosť vedúcich oddelení a projektov pri hospodárení a odmeňovanie. Úlohou vedenia ústavu je vytváranie takých podmienok pre vedeckých pracovníkov, aby celkový vedecký výkon ústavu bol maximálny, pričom dbá najmä o:

- výber celoústavných vedeckých tém a projektov, zmlúv s firmami a partnermi a pod.,
- hodnotenie vedeckých pracovníkov a pracovných skupín a nimi dosiahnutých výsledkov,
- financie a ich účelné a efektívne využívanie, spravodlivé odmeňovania pracovníkov,
- personálnu politiku - prijímanie nových doktorandov, postdokov a ďalších pracovníkov,
- postupné ukončovanie pracovného pomeru starších pracovníkov v dôchodkovom veku,
- starostlivosť o infraštruktúru - chod existujúcich zariadení a kúpu nových, ako aj o úpravu pracovného prostredia zamestnancov ústavu, vrátane kancelárií, laboratórií a pod.

V týchto činnostiach sa vedenie ústavu riadi Strategickým plánom a odporúčaniami Poradného zboru (Advisory Boardu - AB). AB poskytol svoje prvé odporúčania v r. 2017, podľa ktorých sme sa snažili pracovať v r. 2018 a 2019. Na konci r. 2019 AB ocenil, že sme ich odporúčania rešpektovali a konštatoval pokrok v mnohých oblastiach. V r. 2021 sme pokračovali v práci v zmysle týchto odporúčaní a na jeho konci nás AB opäť zodpovedne vyhodnotil.

V r. 2021 sme:

- vytvorili 6 nových postdok pozícií – prijali sme najmä našich absolventov na bežiacie EÚ projekty, cez medzinárodnú súťaž (EuroAccess) a jeden pracovník uspel v SASPRO 2 (nastúpi v máji 2022),
- vypísali nové pozície pre doktorandov prostredníctvom EuroAccess a získali sme štyroch,

- opäť sme boli úspešní v EU projektoch, podali sme viacero, dva začali v r. 2021, celkove bežia 4,
- podali/získali sme 2 patenty,
- hospodárska činnosť bola v r. 2020 na úrovni 56 500 €, v r. 2021 to bolo 80 000 €.

Na tieto výsledky môžeme byť právom hrdí. Nadalej však máme rezervy, na ktoré nás AB upozornil v r. 2019. Je potrebné zvýšiť vedeckú produkciu v prepočte na vedeckých pracovníkov, ako aj impakt faktory časopisov, v ktorých publikujeme naše práce. Budeme nadalej pokračovať aj v omladzovaní ústavu. To sú výzvy, ktorých splnenie posunie náš ústav bližšie k organizáciám západného typu.

6. Spolupráca s univerzitami/vysokými školami a inými subjektmi v oblasti vedy a techniky, okrem aktivít uvedených v kap. 2, 3, 4

6.1. Spoločné pracoviská organizácie

6.1.1. Spolupráca s univerzitami/VŠ (fakultami)

Názov univerzity/vysokej školy a fakulty: Fakulta elektrotechniky a informatiky STU

Oblasť spolupráce: Výchova študentov, spoločná príprava a riešenie projektov a aplikačných riešení

Sídlo spoločného pracoviska (ak je vytvorené):

Začiatok spolupráce: 1969

Zhodnotenie: Výsledkom spolupráce sú spoločné projekty, publikácie a PhD študenti.

Názov univerzity/vysokej školy a fakulty: Fakulta matematiky, fyziky a informatiky UK

Oblasť spolupráce: Výchova študentov, spoločná príprava a riešenie projektov a aplikačný ch riešení

Sídlo spoločného pracoviska (ak je vytvorené):

Začiatok spolupráce: 1992

Zhodnotenie: Výsledkom spolupráce sú spoločné projekty, publikácie a PhD študenti.

Pozn.: uvádzajte len tie spolupráce, na ktoré má organizácia zmluvu resp. memorandum o zriadení spoločného pracoviska, resp. o vzájomnej spolupráci v konkrétnej oblasti výskumu

6.1.2. Spoločné pracoviská s inými organizáciami SAV

Pozn.: uvádzajte len tie spolupráce, na ktoré má organizácia zmluvu resp. memorandum o zriadení spoločného pracoviska, resp. o vzájomnej spolupráci v konkrétnej oblasti výskumu

6.2. Spoločné pracoviská organizácie s inými inštitúciami mimo SAV a VŠ

Pozn.: uvádzajte len tie spolupráce, na ktoré má organizácia zmluvu resp. memorandum o zriadení spoločného pracoviska, resp. o vzájomnej spolupráci v konkrétnej oblasti výskumu

6.3. Spoločné projekty s univerzitami a ostatnými inštitúciami mimo SAV

Názov projektu: Dlhodosahový jav blízkosti v supravodič/feromagnet heteroštruktúrach

Agentúra: APVV

číslo projektu: 19-0303

Koordinátor projektu: FMFI UK

Trvanie projektu: 2020-2023

Názov projektu: Metalické 2D dichalkogenidy prechodných kovov: príprava, štúdium vlastností a korelované stavy

Agentúra: APVV

číslo projektu: 19-0365

Spolupracujúce inštitúcie: FMFI UK

Koordinátor projektu: EIÚ SAV

Trvanie projektu: 2020-2023

Názov projektu: Robustné spinové vlny pre budúce magnonické aplikácie

Agentúra: APVV

číslo projektu: 19-0311

Spolupracujúce inštitúcie: FMFI UK

Koordinátor projektu: EIÚ SAV

Trvanie projektu: 2020-2023

Názov projektu: Optimalizácia okrúhleho kábla z vysokoteplotného supravodiča pre pulzné magnetické polia

Agentúra: APVV

číslo projektu: 20-0056

Koordinátor projektu: Materiálovotechnologická fakulta STU

Trvanie projektu: 2021-2025

Názov projektu: Topologicky netriviálne magnetické a supravodivé nanoštruktúry

Agentúra: APVV

číslo projektu: 20-0425

Koordinátor projektu: Prírodovedecká fakulta, UPJŠ

Trvanie projektu: 2021-2024

Názov projektu: Fotonické labortorium na čipe: výskum a vývoj platformy plazmonického senzora pre okamžitú detekciu zložiek v roztokoch

Agentúra: APVV

číslo projektu: 20-0437

Koordinátor projektu: Ústav elektroniky a fotoniky FEI STU

Trvanie projektu: 2021-2024

Názov projektu: Moderné elektronické súčiastky na báze ultraširokopásmového polovodiča Ga₂O₃ pre budúce vysokonapäťové aplikácie

Agentúra: APVV

číslo projektu: 20-0220

Spolupracujúce inštitúcie: FEI STU, Materiálovotechnologická fakulta STU

Koordinátor projektu: EIÚ SAV

Trvanie projektu: 2021-2025

Názov projektu: Radiačne odolnejší senzor pre RTG zobrazovanie vyššej kvality

Agentúra: APVV

číslo projektu: 18-0273

Koordinátor projektu: Ústav jadrového a fyzikálneho inžinierstva FEI STU

Trvanie projektu: 2019-2023

Názov projektu: Výskum radiačne odolných polovodičových detektorov pre jadrovú energetiku

Agentúra: APVV

číslo projektu: 18-0243

Spolupracujúce inštitúcie: Ústav jadrového a fyzikálneho inžinierstva FEI STU

Koordinátor projektu: EIÚ SAV

Trvanie projektu: 2019-2022

Názov projektu: Vysokoodolné polovodičové senzory ionizujúceho žiarenia pre využitie v radiačnom prostredí

Agentúra: VEGA

číslo projektu: 2/0084/20

Spolupracujúce inštitúcie: Ústav jadrového a fyzikálneho inžinierstva FEI STU

Koordinátor projektu: EIÚ SAV

Trvanie projektu: 2020-2023

Názov projektu: Nanooptické sondy a senzory integrované na optickom vlákne

Agentúra: APVV

číslo projektu: 20-0264

Koordinátor projektu: Žilinská univerzita v Žiline

Trvanie projektu: 2021-2024

Pozn.: uviesť konkrétne spoločné aj bilaterálne projekty na základe platnej zmluvy o spolupráci

6.4. Iné typy spoločných aktivít s inštitúciami mimo SAV

So slovenským start-upom Archee, s.r.o. sme uzavreli rámcovú dohodu o spolupráci pri vývoji technológie SPEAR, ktorá predstavuje nový typ modulárnej plávajúcej vodnej elektrárne. Generátor elektrického prúdu v nej bude roztáčať systém pomaly sa pohybujúcich vesiel, poháňaných vodným prúdom. Pre potreby určenia energetickej bilancie zariadenia sme vyvinuli autonómny terénny systém merania mechanického príkonu, dodávaného rotačným pohybom hriadeľa. Systém poslužil pri spoločnom testovaní prvého prototypu pohonu, v pontóne na Dunaji.



7. Aplikácia výsledkov výskumu v spoločenskej a hospodárskej praxi

7.1. Výsledky výskumu organizácie aplikované v spoločenskej a hospodárskej praxi

7.2. Kontraktový – zmluvný výskum (vrátane zahraničných kontraktov)

Názov/účel kontraktového výskumu: HTS Energy Applications Study

Zadávateľ výskumného kontraktu: GSI Darmstadt, Nemecko

Začiatok spolupráce: 2021

Ukončenie spolupráce: 2021

Finančný prínos pre organizáciu (€): 80000

7.3. Iné formy aplikácie výsledkov výskumu v spoločenskej a hospodárskej praxi

8. Aktivity pre Národnú radu SR, vládu SR, ústredné orgány štátnej správy SR a iné organizácie

8.1. Členstvo v poradných zboroch vlády SR, Národnej rady SR, ministerstiev SR, orgánoch EÚ, EP, NATO a pod.

Tabuľka 8a Členstvo v poradných zboroch Národnej rady SR, vlády SR, ministerstiev SR, orgánoch EÚ, EP, NATO a pod.

Meno pracovníka	Názov orgánu	Funkcia
doc. Ing. Fedor Gömöry, DrSc.	SKVH	člen
	Akreditačná komisia	člen Pracovnej skupiny pre elektrotechniku
RNDr. Dagmar Gregušová, DrSc.	SKVH	predsedníčka komisie ad hoc
Ing. Pavol Kováč, DrSc.	SKVH	člen
Ing. Ján Kuzmík, DrSc.	SKVH	člen
Mgr. Bohumír Zaťko, PhD	Komisia pre SUJV Dubna pri vláde SR	člen

8.2. Expertízna činnosť a iné služby pre štátnu správu a samosprávy

8.3. Členstvo v radách štátnych programov a podprogramov ŠPVV a ŠO

Tabuľka 8b Členstvo v radách štátnych programov a podprogramov ŠPVV a ŠO

Meno pracovníka	Názov orgánu	Funkcia
Ing. Karol Fröhlich, DrSc.	Grantová agentúra MŠ - APVV	Člen Rady pre program Podpora výskumu a vývoja v podnikoch a podpora spolupráce podnikov s výskumnými organizáciami na obdobie rokov 2016 – 2019 (VVP)
doc. Ing. Fedor Gömöry, DrSc.	Grantová agentúra MŠ - APVV	Člen Rady pre technické vedy

8.4. Prehľad aktuálnych spoločenských problémov, ktoré riešilo pracovisko v spolupráci s Kanceláriou prezidenta SR, s vládnyimi a parlamentnými orgánmi alebo pre ich potrebu

9. Vedecko-organizačné a popularizačné aktivity

9.1. Vedecko-popularizačná činnosť

Tabuľka 9a Súhrnné počty vedecko-popularizačných činností organizácie SAV

Typ	Počet	Typ	Počet	Typ	Počet
prednášky/besedy	0	tlač	1	TV	0
rozhlás	0	internet	3	exkurzie	0
publikácie	0	multimediálne nosiče	0	dokumentárne filmy	0
iné	0				

9.2. Vedecko-organizačná činnosť

Tabuľka 9b Vedecko-organizačná činnosť

Názov podujatia	Domáca/ medzinárodná	Miesto	Dátum konania	Počet účastníkov
Online dni príležitostí	domáca	virtuálne	01.05.-01.05.2021	10 – 15 000
Online dni príležitostí	domáca	virtuálne	02.11.-02.11.2021	10 – 15 000

9.3. Účasť na výstavách

9.4. Účasť v programových a organizačných výboroch národných konferencií

Tabuľka 9c Programové a organizačné výbory národných konferencií

Meno pracovníka	Programový	Organizačný	Programový i organizačný
Spolu			

9.5. Členstvo v redakčných radách časopisov

Ing. Karol Fröhlich, DrSc.

Material Science in Semiconductor Processing (funkcia: člen)

doc. Ing. Fedor Gömöry, DrSc.

IEEE Transactions on Applied Superconductivity (funkcia: člen)

RNDr. Dagmar Gregušová, DrSc.

Electronic Materials - mdpi (funkcia: člen)

Ing. Štefan Chromik, DrSc.

ICRN Condensed Matter Physics (funkcia: člen)

Ing. Pavol Kováč, DrSc.

Superconductor Science and Technology (funkcia: člen)

doc. Ing. Jozef Novák, DrSc.

Journal of Electrical Engineering (funkcia: člen)

Material Science in Semiconductor Processing (funkcia: člen)

Ing. Jozef Osvald, DrSc.

Materials Science in Semiconductor Processing (funkcia: člen)

Mgr. Enric Pardo, PhD.

Superconductor Science and Technology (funkcia: člen)

Ing. Milan Ťapajna, PhD.

Semiconductor Science and Technology (funkcia: člen)

Ing. Jaroslav Tóbk, PhD.

Scientific Reports (funkcia: člen)

9.6. Činnosť v domácich vedeckých spoločnostiach

9.7. Iné dôležité informácie o vedecko-organizačných a popularizačných aktivitách

10. Činnosť knižnično-informačného pracoviska

10.1. Knižničný fond

Tabuľka 10a Knižničný fond

Knižničné jednotky spolu		2179
z toho	knihy a zviazané periodiká	1217
	audiovizuálne dokumenty	
	elektronické dokumenty (vrátane digitálnych)	146
	mikroformy	
	iné špeciálne dokumenty - dizertácie, výskumné správy	816
	Rukopisy, vzácne tlače	
Počet titulov dochádzajúcich periodík		3
z toho zahraničné periodiká		1
Ročný prírastok knižničných jednotiek		8
v tom	kúpou	2
	darom	6
	výmenou	
	bezodplatným prevodom	
	náhradou	
Úbytky knižničných jednotiek		
Knižničné jednotky spracované automatizovane		2179

Výraz „**v tom**“ označuje úplné (vyčerpávajúce) údaje, ktorých súčet sa musí rovnať údaju v riadku „spolu“, čiže nadradenému riadku.

Výraz „**z toho**“ označuje neúplné (výberové) údaje, ktorých súčet sa nemusí rovnať údaju v riadku „spolu“.

10.2. Výpožičky a služby

Tabuľka 10b Výpožičky a služby

Výpožičky spolu (riadok 1)		
v tom z r. 1	prezenčné výpožičky	
	absenčné výpožičky	
v tom z r. 1	odborná literatúra pre dospelých	
	výpožičky periodík	
MVS iným knižniciam		
MVS z iných knižníc		
MMVS iným knižniciam		
MMVS z iných knižníc		
Počet vypracovaných bibliografií		
Počet vypracovaných rešerší		246

10.3. Používatelia

Tabuľka 10c Používatelia

Registrovaní používatelia	118
Návštevníci knižnice spolu (bez návštevníkov podujatí)	0

10.4. Iné údaje

Tabuľka 10d Iné údaje

On-line katalóg knižnice na internete (1=áno, 0=nie)	1
Náklady na nákup knižničného fondu v €	141

10.5. Iné informácie o knižničnej činnosti**11. Aktivity v orgánoch SAV****11.1. Členstvo vo Výbore Snemu SAV**doc. Ing. Fedor Gömöry, DrSc.

- člen do júna

11.2. Členstvo v Predsedníctve SAV a vo Vedeckej rade SAV**11.3. Členstvo v komisiách SAV**RNDr. Vladimír Cambel, DrSc.

- Etická komisia SAV (člen)

Ing. Ján Fedor, PhD

- Kontrolná rada areálu SAV (člen)

doc. Ing. Fedor Gömöry, DrSc.

- Akreditačná komisia SAV (člen)
- Komisia SAV pre medzinárodnú vedecko-technickú spoluprácu (člen - zástupca Snemu SAV)
- Komisia SAV pre vyhodnocovanie medzinárodných projektov (člen)
- Komisia SAV pre zahraničné styky (člen)
- Porota pre udeľovanie Medzinárodnej ceny SAV (člen)
- Rada SAV pre vzdelávanie a doktorandské štúdium (člen)

RNDr. Dagmar Gregušová, DrSc.

- Komisia SAV pre posudzovanie vedeckej kvalifikácie zamestnancov (člen)

11.4. Členstvo v orgánoch VEGA

RNDr. Dagmar Gregušová, DrSc.

- Komisia 5 pre elektrotechniku, automatizáciu a riadiace systémy a príbuzné odbory informačných a komunikačných technológií (podpredsedníčka)
- Rozšírené Predsedníctvo VEGA (člen)

Dr. rer. nat. Martin Hulman

- Komisia VEGA č. 1 pre matematické vedy, počítačové a inf vedy a fyzikálne vedy (člen)

Ing. Ján Kuzmík, DrSc.

- Komisia 5 pre elektrotechniku, automatizáciu a riadiace systémy a príbuzné odbory informačných a komunikačných technológií (člen)

Ing. Alica Rosová, CSc.

- Komisia pre strojárstvo a príbuzné odbory informačných a komunikačných technológií a materiálové inžinierstvo (člen)

Ing. Milan Ľapajna, PhD.

- Komisia pre elektrotechniku, automatizáciu a riadiace systémy a príbuzné odbory informačných a komunikačných technológií (člen)

Mgr. Bohumír Zaťko, PhD

- Komisia pre elektrotechniku, automatizáciu a riadiace systémy a príbuzné odbory informačných a komunikačných technológií (člen)

12. Hospodárenie organizácie

12.1. Výdavky organizácie

Tabuľka 12a Výdavky organizácie (skutočnosť k 31. 12. 2021 v €)

Typ organizácie (RO,PO)		Zdroje, z ktorých sa kryli jednotlivé výdavky			
Výdavky	Spolu	kapitola SAV (111)	iné štátne a verejné zdroje	ostatné zdroje	% krytia z kapitoly SAV
1. Bežné výdavky	3 296 870,51	2 344 627,70	654 309,20	297 933,61	71,12
z toho: mzdy (610)	1 754 800,96	1 434 074,00	219 001,14	101 725,82	81,72
vedecká výchova štipendiá (640)	129 470,05	120 063,95		9 406,10	92,73
poistné a príspevok do poistovní (620)	600 833,67	493 863,11	76 514,82	30 455,74	82,20
tovary a služby (630)	619 300,46	288 626,64	234 392,24	96 281,58	46,61
transfery partnerom projektov (640)	171 259,88	5 000,00	124 401,00	41 858,88	2,92
2. Kapitálové výdavky	21 205,49	3 000,00		18 205,49	14,15
z toho: obstarávanie kapitálových aktív	21 205,49	3 000,00		18 205,49	14,15
kapitálové transfery	0,00	0,00	0,00	0,00	0,00

12.2. Zdroje financovania organizácie

Tabuľka 12b Zdroje financovania organizácie (skutočnosť k 31. 12. 2021 v €)

Typ organizácie (RO,PO)		Z toho kategórie			
Zdroje	Spolu	Kapitálové zdroje	zdroje na mzdy (610)	zdroje na odvody do poisťovní (620)	zdroje na transfery partnero m projektov
1. kapitola SAV (111)	2 344 993,59		1 434 074,00	494 229,00	0,00
z toho: VEGA	143 530,28	3 000,00			0,00
MVTS výskumné projekty	0,00				
MVTS podpora	43 980,36	0,00	0,00	0,00	0,00
SASPRO/MOREPRO	12 000,00	0,00	12 000,00		0,00
Vydávanie časopisov	477,00				0,00
Vedecká výchova (štipendiá)	120 063,95				
OTAS (630)	96 639,00				
2. ŠF EÚ vr. fin. zo ŠR	41 487,88	0,00	30 762,30	10 725,58	0,00
3. medzinárodné grantové projekty	505 738,05	10 303,98	83 097,91	29 042,76	0,00
z toho: H2020	505 738,05	10 303,98	83 097,91	29 042,76	0,00
4. iné štátne a verejné zdroje (spolu)	637 931,00		188 239,20	65 789,60	124 401,00
z toho: APVV	605 690,00	0,00	177 163,00	61 918,47	124 401,00
podpora z kapitoly MŠVVaŠ SR (stimuly)	32 241,00		11 076,20	3 871,13	
5. ostatné zdroje	116 947,80	7 901,51	18 627,91	1 412,98	0,00
z toho: príjmy z prenájmu	0,00				
príjmy z podnikateľskej činnosti	0,00				
príjmy z expertnej činnosti a služieb	93 517,71	18 627,91	18 627,91	1 412,98	0,00

13. Nadácie a fondy pri organizácii SAV

14. Informácie o aktivitách súvisiacich s uplatňovaním princípov rodovej rovnosti

14.1. Stručné hodnotenie stavu uplatňovania princípov rodovej rovnosti v organizácii, súvisiace aktivity a opatrenia

Na Elektrotechnickom ústave SAV sme k 1. decembru 2021 zriadili Komisiu pre rodové a etické otázky.

Členmi komisie sú:

- Mgr. Miroslava Blázyová (miroslava.blazyova@savba.sk)
- RNDr. Vladimír Cambel, DrSc. (predseda komisie) (vladimir.cambel@savba.sk)
- Ing. Filip Gucmann, PhD. (filip.gucmann@savba.sk)
- Mgr. Jana Hrdá (jana.hrda@savba.sk)
- Ing. Ján Šoltýs, PhD. (jan.soltys@savba.sk)
- RNDr. Marianna Španková, PhD. (elekmspa@savba.sk)

Rodová rovnosť a etické otázky sú pre náš ústav veľmi dôležité. V prípade vzniku problémov v týchto oblastiach sa naši zamestnanci a zamestnankyne môžu obrátiť na Komisiu prostredníctvom písomného podnetu podaného na sekretariáte ústavu. Do jej pôsobnosti spadajú aj otázky sexuálneho obťažovania na pracovisku.

Komisia sa v súčasnosti intenzívne zaoberá otázkou rodovej rovnosti v SAV a na EIÚ. Naším cieľom je podporovať naše vedkyne a zároveň ukázať aj mladým talentovaným študentkám a vedkyniam, že na našom ústave je pre nich vytvorené priaznivé tvorivé a rodovo žičlivé prostredie. Sme toho názoru, že rodová rovnosť na pracovisku zlepšuje tímovú prácu, a vytvára lepšie pracovné podmienky, čo môže následne zvýšiť kvalitu vedeckých výstupov a zabrániť odchodu talentovaných vedkýň a vedcov do iných pracovných oblastí.

Pozitívnym výsledkom tohto snaženia je aj skutočnosť, že na EIÚ majú ženy významné postavenie. Napriek značnému nepomeru počtu vedeckých pracovníkov a pracovníčok (40:8) zastávajú momentálne nasledovné významné funkcie:

- Vedecká tajomníčka (M. Španková)
- Predsedníčka vedeckej rady a zároveň garantka PhD štúdia na ústave (D. Gregušová)
- Predsedníčka odborov (M. Sojková)
- Zástupkyňa doktorandov a mladých vedeckých pracovníkov (J. Hrdá).

Nevyrovnanosť rodovej skladby vedúcich projektov z nasledujúcich tabuliek svedčí o existencii rodových stereotypov a handikepov, na ktoré však EIÚ SAV nemá priamy vplyv.

14.2. Rodová skladba hlavných riešiteľov (vedúcich) projektov

Tabuľka 14a Rodová skladba hlavných riešiteľov domácich projektov

ŠTRUKTÚRA PROJEKTOV	Organizácia SAV je nositeľom projektu			Organizácia SAV je zmluvným partnerom		
	Počet	Hlavný riešiteľ		Počet	Hlavný riešiteľ za organizáciu	
		Muž	Žena		Muž	Žena
1. Projekty VEGA	15	12	3	1	1	0
2. Projekty APVV	8	8	0	9	9	0
3. Projekty EŠIF	0	0	0	0	0	0
4. Projekty SASPRO, MoRePro	1	1	0	0	0	0
5. Iné projekty (FM EHP, Vedecko-technické projekty, na objednávku rezortov a pod.)	1	1	0	0	0	0

Tabuľka 14b Rodová skladba hlavných riešiteľov medzinárodných projektov

ŠTRUKTÚRA PROJEKTOV	Organizácia SAV je nositeľom projektu			Organizácia SAV je zmluvným partnerom		
	Počet	Hlavný riešiteľ		Počet	Hlavný riešiteľ za organizáciu	
		Muž	Žena		Muž	Žena
1. Projekty Horizont 2020 a Horizont Európa	0	0	0	5	5	0
2. Projekty ERA.NET, ESA, JRP	0	0	0	2	2	0
3. Projekty COST	0	0	0	3	3	0
4. Projekty EUREKA, NATO, UNESCO, CERN, IAEA, IVF, ERDF a iné	0	0	0	1	1	0

5. Projekty v rámci medzivládnych dohôd	1	1	0	0	0	0
6. Bilaterálne projekty MAD, Mobility, Open Mobility	0	0	0	0	0	0
7. Bilaterálne projekty ostatné	6	4	2	0	0	0
8. Podpora MVTS z národných zdrojov okrem SAV (APVV a iné)	0	0	0	0	0	0
9. SAS-UPJŠ ERC Visiting Fellowship Grants	0	0	0	0	0	0
10. Iné projekty	0	0	0	0	0	0

14.3. Výskum zameraný na rodovú problematiku

Uveďte stručné, základné informácie o projektoch orientovaných na rodovú problematiku, ak organizácia takýto výskum realizuje. Informácie o financovaní a výsledkoch takýchto projektov sa nachádzajú v kapitole 2 a v prílohe C.

Slovenská akadémia vied pripravila v rámci projektu ATHENA „Plán rodovej rovnosti SAV“. Ako inštitúcia zriadená SAV sa k tomuto plánu hlásime, zaväzujeme sa ho dodržiavať a naplňovať. Naším cieľom je aplikovať ho pre podmienky nášho ústavu tak, aby sme zvýšili počet vedkýň pracujúcich na ústave a vyrovnali tak v budúcnosti ich šance v riadiacich štruktúrach ústavu. Takáto zmena je pre nás dôležitá nielen z inštitucionálneho, ale aj z kultúrneho hľadiska. Na aktivitách v tejto oblasti spolupracujeme s kolektívom pracujúcim na projekte ATHENA, s CVTI (Ing Zuzana Staňáková, analytička) a s prof. Mgr. Dagmar Cagánovou, PhD., z MTF Trnava.

15. Iné významné činnosti organizácie SAV

V r. 2021 sme významným spôsobom zvýšili komunikáciu s firmami a ústavmi SAV v oblasti zavádzania poznatkov do praxe. Niektoré vymenované spolupráce s firmami sú v počiatkoch (pripravujeme spoločné projekty), iné už bežia dlhšie. Patria sem nasledujúce spolupráce s priemyselnými partnermi:

Názov technologickej spoločnosti: Bizzcom s.r.o. <https://bizzcom.sk>

V čom spočíva táto spolupráca: Spoločnosť Bizzcom s.r.o. sa zaoberá robotikou. V spolupráci ňou podávame veľký EU projekt v schéme IPCEI, ktorého cieľom je výroba memrisorových čipov na Slovensku. Náš ústav bude participovať na výskume, vývoji a testovaní týchto čipov.

Názov technologickej spoločnosti: Continuumtech Ltd. <https://continuumtech.com/>

V čom spočíva táto spolupráca: Nemecká spoločnosť Continuumtech Ltd. sa zaoberá návrhom a designom kontrolnej elektroniky/čipov rôznych elektronických systémov, najmä na báze ADC/DAC prevodníkov. Aj v spolupráci s touto spoločnosťou podávame veľký EU projekt typu IPCEI, ktorého cieľom je výroba memrisorových čipov na Slovensku. Náš ústav bude participovať na výskume, vývoji a testovaní týchto čipov.

Názov technologickej spoločnosti: Atlant 3D Ltd. www.atlant3d.com

V čom spočíva táto spolupráca: Firmu Atlant 3D spoluzakladal náš doktorand na základe výsledkov svojej vedeckej práce, EU projektu a patentu 3D plotera využívajúceho princíp technológie ALD (atomic layer deposition, rast po atomárnych vrstvách). Naša spolupráca pokračuje v oblasti testovania súčiastok pripravených ALD ploterom.

Názov spoločnosti: Danubia Nanotech s.r.o. www.danubiananotech.com

V čom spočíva táto spolupráca: Firma Danubia Nanotech sa zaoberá vývojom grafénových technológií. Ide o malú high-tech firmu. Náš ústav s ňou úzko spolupracuje vo oblasti 2D materiálov, v technológii prípravy grafén oxidu a jeho využitia vo výskume.

Okrem toho sme s viacerými firmami a Univerzitami pripravili Slovenskú národnú stratégiu v mikroelektronike. Práce sa zúčastnili firmy:

Bizzcom s.r.o.; Continuum Technologies s.r.o.; Ctrl s.r.o.; K-Mlab (Ilmsens GmbH); Neuromorphics Europe o.z.; Tachyum s.r.o.; ON Semiconductor SK, a.s.; R-DAS, s.r.o.; SEMIKRON s.r.o.; Powertec s.r.o.;

A verejné inštitúcie: EIÚ SAV; FEI STU; Žilinská univerzita

Uzáver je, že nasledujúcich 10 až 15 rokov by sa výskum v oblasti elektroniky na Slovensku mal sústrediť na oblasť progresívnych technológií a materiálov pre mikroelektroniku, čo by zaradilo Slovensko do širšieho EU výskumu. Medzi progresívne materiály patria SiC, GaN, GaAs a iné. Progresívne technológie zahŕňajú:

- **Kvantové technológie (jednofotónový detektor a iné)**
- **Polovodičové súčiastky** na báze kremíka (ale aj SiC, GaAs a iné)
- **MEMS (Micro-Electro-Mechanical Systems)**
- **2D materiály**, hybridné materialy
- **Spintronika** a fotonika
- **Senzory a aktuátory**
- **Nové výpočtové metódy a princípy**
- **Biomateriály**, biotechnológie a systémy.

Hrubým písmom sú zvýraznené technológie, ktorých výskumu sa venujeme na EIÚ SAV. Ukazuje sa teda, že témy riešené na EIÚ SAV sú aktuálne aj z pohľadu priemyselného využitia.

16. Vyznamenania, ocenenia a ceny udelené pracovníkom organizácie v roku 2021

16.1. Domáce ocenenia

16.1.1. Ocenenia SAV

Dadhich Anang

Súťaž doktorandov SAV

Oceňovateľ: SAV

Opis: Čestné uznanie

Šoltýs Ján

Nature Index

Oceňovateľ: SAV

16.1.2. Iné domáce ocenenia

Mošat' Marek

Cena rektora STU

Oceňovateľ: STU

Šichman Peter

Študentská osobnosť Slovenska akad. r. 2020/2021

Oceňovateľ: Junior Chamber International-Slovakia

Opis: Cena spoločnosti ABB (priemysel 4.0.)

Zat'ko Bohumír

Osobné poďakovanie dekana

Oceňovateľ: FEI STU, Bratislava

Opis: Osobné poďakovanie dekana fakulty pri príležitosti 80. výročia výchovy inžinierov elektrotechniky a informatiky

16.2. Medzinárodné ocenenia

Gucmann Filip

Outstanding reviewer for Nanotechnology

Oceňovateľ: IOP publishing

Opis: „high quality and timeliness of review“

17. Poskytovanie informácií v súlade so zákonom č. 211/2000 Z. z. o slobodnom prístupe k informáciám v znení neskorších predpisov (Zákon o slobode informácií)

18. Problémy a podnety pre činnosť SAV

V poslednom čase sme zaregistrovali zvýšenú snahu PSAV riešiť rôzne problémy SAV. Ide o nasledovné oblasti:

- základné financovanie vedy zo strany štátu
- mzdová reforma
- výkonové financovanie
- patentovanie
- využívanie prístrojového vybavenia ústavov SAV.

Základné financovanie vedy

Veda na Slovensku je financovaná nesystémovo – štátom zriadené vedecké inštitúcie nedostávajú dostatok prostriedkov ani na ich chod a ani na základnú činnosť svojich pracovníkov. Vedec by v základnom balíku mal mať okrem platu aj financie na bežné experimenty, služobné cesty, publikovanie výsledkov, atď. Jednou z možností je, aby vnv na pracovníka bolo úmerné jeho platu (tak je to v niektorých štátnych vedeckých inštitúciách v USA, napr. v Argonne Nat. Lab.)

Čo sa týka ďalších oblastí, realita nám ukazuje aj slabiny prijatých riešení / postupov, na ktoré chceme upozorniť a radi o nich budeme v priebehu roka 2022 diskutovať na oficiálnych fórach (Snem, RR1, RR). Konkrétne vidíme na EIÚ nasledovné problémy v riadení zo strany PSAV.

Mzdová reforma

Prijatou reformou sa odstránila elementárna nespravodlivosť z minulosti, keď sa rozpočet ústavu prepúšťaním pracovníkov nemenil, takže ústav znížením počtu zamestnancov získal prostriedky navyše bez ohľadu na výkon ústavu.

Po realizácii tejto reformy však táto okamžite začína pôsobiť regresívne, brzdí dynamické ústavy ako EIÚ. Tie majú silu rozlúčiť sa s menej výkonnými pracovníkmi a priplatiť tým výkonným zo zdroja 111 (čo vidíme ako jedinou cestu na udržanie kvality vo vede). Toto sa však v bežiacom systéme mzdovej reformy nevypláca – po prepustení slabších pracovníkov okamžite prideme o ich platy. Následne tento problém riešime priplácaním trvalých pracovníkom z projektov, čo je podľa nášho Advisory Board nesystémové a neetické (vyplácanie odmien vedúcim projektu). Projektové peniaze majú byť použité výhradne na financovanie nových pracovníkov, najmä postdokov.

Návrh riešenia – Platy výkonných pracovníkov majú byť od štátu (od PSAV) 1.5 až 2 x vyššie – čo je možné riešiť napr. vnútornou smernicou SAV. Financie najst' nasledovne:

- Zrušiť súbeh platov na 2-3 štátnych pracoviskách, od štátu má pracovník dostávať 1 plat,
- Zrušiť súbeh platov a dôchodkov u dôchodcov,
- Znížiť počet kmeňových pracovníkov ústavov za obdobie 3-5 rokov o 10- 30 % (ako to ktorý ústav utiahne) pri zaručení zvýšenia/udržania vedeckého výkonu inštitúcií,
- Projektové mzdové prostriedky používať výhradne na platenie nových pracovníkov (postdokov), teda zamedziť platby sebe a kolegom na trvalých miestach
- Ak sľúbime takúto reformu, štát by mohol pridať vedcom na SAV k mzdám 10-20%.

Výkonové financovanie

Opäť, výkonové financovanie je v jadre v poriadku, ale vnímame na ňom závažné nepresnosti.

Na EIÚ máme s hodnotením jednotlivcov 15 ročnú skúsenosť a vieme, že pocit spravodlivosti hodnotených je nesmierne dôležitý. Preto máme na ústave zavedené mechanizmy nezávislosti hodnotiacich (tí hľadajú konsenzus počas hodnotenia) a možnosť dodatočnej opravy hodnotenia riaditeľom. Ďalej, máme každoročný verejný seminár o výsledkoch hodnotenia v danom roku a diskutujeme o aktualizácii pravidiel hodnotenia, ak je konsenzus na zmene, pravidlá hodnotenia VR aktualizuje. Tak sme dosiahli stav, že drvivá väčšina pracovníkov hodnotenie akceptuje a považuje ho za spravodlivé.

Ako to je na SAV? Pripomienky ústavov zle ohodnotených medzinárodným panelom sa dlhodobo

neberú do úvahy. Tieto ústavy, aj keď dosiahnu výrazné zlepšenie, stále trpia nízkym ohodnotením panelom pred šiestimi rokmi. V diskusii sú spravidla jednoducho prehlasovaní väčšinou. V hodnotení je veľmi dôležitý vedecký výkon ústavov (40%). Tu vidíme veľkú nepresnosť v započítavaní článkov jednotlivým ústavom. Príklad:

- na ústave A pracuje pol roka 10 pracovníkov na 1 článku, ústav získa celkovo 1 bod
- na ústave B pracovník s úväzkom 10 % publikuje za pol roka 10 prác, pričom má 9 spoluautorov v zahraničí a 40% úväzok na ústave C a ďalších 50 % na univerzite. Takýmto spôsobom za pol roka prinesie ústavu B 10 bodov, ústavu C 10 bodov a univerzite 10 bodov (ak ju označí v systéme, že publikoval pre ňu), celkove na Slovensku 30 bodov (ďalšie body si označujú spoluautori v zahraničí).

Čo má riaditeľ ústavu v takomto systéme robiť? Má nahovoriť pracovníkov, nech nerobia vlastný výskum a nech sa každý z nich pridá do iných kolektívov, aby získali viac bodov pre ústav a ten bol následne lepšie hodnotený? Chce PSAV, aby sa ústavy hodnoteniu prispôsobili a nerobili vlastný výskum (čo by bolo logické) alebo zmení systém tak, aby zvažil aj autorský podiel ústavu?

Riešenie:

Započítavať autorské podiely tak, aby celkovo (celosvetovo) dostala jedna publikácia sumu 1. Keďže komunikácia so zahraničnými, ale aj domácimi spolupracovníkmi za účelom dohadovania podielov nie je dobrá cesta a viedla by určite k zhoršeniu medziľudských vzťahov, navrhujeme, aby sa každému spoluautorovi započítal priamo podiel ($1/n/m$, kde n je počet spoluautorov a m počet zamestnávateľov v adrese autora). Ako vieme, tento postup nie je kompatibilný s existujúcimi systémami započítavania publikácií, sumu za ústav by mal PSAV dodať riaditeľ, čím by ručil za správnosť dodaných dát.

Patentovanie

Pokrok v systéme patentovania v SAV považujeme za nedostatočný – bolo to vidieť porovnaním prezentácií našich zástupcov a zástupcov Taiwanu na decembrovom spoločnom seminári. Ide pravdepodobne o dôsledok dlhodobého nezáujmu štátu, filozofie budovania systému ochrany duševného vlastníctva v oblasti vedy a výskumu na Slovensku a právnej podpory. Navyše, asi chýba aj skutočná potreba ústavov, patentovanie je stále iba formálna povinnosť. Možno je to dôsledok toho, že u nás zatiaľ žiadny patent nepriniesol profit ani organizáciám ani jednotlivcom.

Riešenie:

Navrhujeme zvažiť zintenzívnenie spolupráce so slovenskými firmami, ktoré majú skúsenosti s patentovaním vo svete, s nákupom a predajom patentov a licencií, majú IPR právnikov s dlhoročnými skúsenosťami, atď. Tieto firmy by sme v rámci spolupráce mohli priamo zaangažovať v našich patentoch (napr. spoluautorstvom), pričom by nám postupne zaškolili v oblasti IPR našich záujemcov, najmä právnikov a právničky.

Systém ochrany IPR vo vede by mal medzitým pripraviť a podporiť aj štát, ten by mal predstaviť dlhodobú koncepciu v tejto oblasti, vrátane výučby právnikov v tejto oblasti. Ak sa však štát nebude v IPR angažovať, navrhujem ostať na úrovni spomínanej spolupráce s firmami.

Správu o činnosti organizácie SAV spracoval(i):

RNDr. Vladimír Cambel, DrSc., 02/ 5922 2552, 2555

Ing. Jozef Fabian, CSc, 02/5922 2658

PhDr. Anna Gömöryová, 0903 919 384

Schválila vedecká rada organizácie SAV dňa 20.1.2022

Riaditeľ organizácie SAV

Predseda vedeckej rady

.....
RNDr. Vladimír Cambel, DrSc.

.....
RNDr. Dagmar Gregušová, DrSc.

Prílohy

Príloha A

Zoznam zamestnancov a doktorandov organizácie k 31.12.2021

Zoznam zamestnancov podľa štruktúry

	Meno s titulmi	Úväzok (v %)	Ročný prepočítaný úväzok
Vedúci vedeckí pracovníci DrSc.			
1.	RNDr. Vladimír Cambel, DrSc.	100	1.00
2.	Ing. Karol Fröhlich, DrSc.	50	0.50
3.	doc. Ing. Fedor Gömöry, DrSc.	100	0.83
4.	RNDr. Dagmar Gregušová, DrSc.	100	1.00
5.	Ing. Štefan Chromik, DrSc.	40	0.52
6.	Ing. Pavol Kováč, DrSc.	100	1.00
7.	Ing. Ján Kuzmík, DrSc.	100	1.00
8.	doc. RNDr. Martin Moško, DrSc.	10	0.10
9.	doc. Ing. Jozef Novák, DrSc.	60	0.50
10.	Ing. Jozef Osvald, DrSc.	40	0.52
11.	doc. Ing. Viera Skákalová, DrSc.	60	0.60
Samostatní vedeckí pracovníci			
1.	Ing. Michal Blaho, PhD.	100	0.50
2.	RNDr. Pavol Boháček, CSc.	40	0.45
3.	doc. RNDr. Edmund Dobročka, CSc.	80	0.78
4.	Ing. Ján Fedor, PhD	100	1.00
5.	Mgr. Juraj Feilhauer, PhD.	100	1.00
6.	Ing. Filip Guemann, PhD.	100	1.00
7.	RNDr. Štefan Haščík, PhD.	60	0.73
8.	Ing. Boris Hudec, PhD.	100	1.00
9.	Dr. rer. nat. Martin Hulman	100	1.00
10.	Ing. Jozef Huran, CSc.	60	0.00
11.	Ing. Tibor Izsák, PhD.	100	1.00
12.	RNDr. Dušan Korytár, CSc.	25	0.25
13.	Mgr. Ján Kováč, PhD.	100	1.00
14.	RNDr. Michal Kučera, PhD	100	1.00
15.	Ing. Róbert Kúdela, CSc.	40	0.40
16.	Mgr. Agáta Laurenčíková, PhD.	100	0.25

17.	Ing. Peter Lobotka, CSc.	20	0.20
18.	RNDr. Antónia Mošková, CSc.	100	1.00
19.	Dr. Michal Mruczkiewicz	50	0.50
20.	Mgr. Enric Pardo, PhD.	100	1.00
21.	Ing. Marián Precner, PhD.	100	1.00
22.	Ing. Alica Rosová, CSc.	100	1.00
23.	Mgr. Eugen Seiler, PhD	100	1.00
24.	Mgr. Michaela Sojková, PhD.	100	1.00
25.	Mgr. Mykola Soloviov, PhD.	100	1.00
26.	Ing. Roman Stoklas, PhD.	100	1.00
27.	Ing. Ján Šoltýs, PhD	100	1.00
28.	Ing. Ján Šouc, CSc.	80	0.77
29.	RNDr. Marianna Španková, PhD	100	1.00
30.	RNDr. Vladimír Štrbík, CSc.	20	0.20
31.	Ing. Milan Ťapajna, PhD.	70	0.70
32.	Ing. Jaroslav Tóvik, PhD.	80	0.80
33.	Ing. Gabriel Vanko, PhD.	100	1.00
34.	Ing. Marian Varga, PhD.	100	1.00
35.	Ing. Zdenko Zápražný, PhD.	100	1.00
36.	Mgr. Bohumír Zaťko, PhD	100	1.00
Vedeckí pracovníci			
1.	MSc. Anang Dadhich, PhD.	100	0.56
2.	Ing. Jozef Fabian, CSc	100	1.00
3.	Ing. Norbert Gál, PhD.	100	1.00
4.	Ing. Ladislav Hrubčín, CSc.	10	0.00
5.	Mgr. Peter Hutár, PhD.	100	0.70
6.	Ing. Milan Kapolka, PhD.	100	0.00
7.	Ing. Tomáš Kujovič, PhD.	100	1.00
8.	Ing. Marek Mošat', PhD.	100	1.00
9.	Mgr. Peter Nádaždy, PhD.	50	0.50
10.	RNDr. Lenka Pribusová Slušná, PhD.	100	1.00
11.	Ing. Rastislav Ries, PhD.	100	1.00
12.	Dr. Arpit Kumar Srivastava	100	0.17
13.	Ing. Tomáš Ščepka, PhD.	100	1.00
Odborní pracovníci s VŠ vzdelaním (výskumní a vývojoví zamestnanci)			

1.	Ing. Dušan Berek	100	1.00
2.	Mgr. Konstantin Bublikov	100	0.53
3.	Ing. Marek Búran	10	0.10
4.	Mgr. Fridrich Egyenes	10	0.10
5.	Ing. Peter Eliáš	100	1.00
6.	Ing. Lubomír Frolek	100	1.00
7.	Ing. Stanislav Hasenöhrl	100	1.00
8.	Mgr. Jana Hrdá	10	0.10
9.	Ing. Fedor Hrubíšák	10	0.03
10.	MSc. Arif Hussain	100	0.08
11.	Ing. Imrich Hušek	100	1.00
12.	RNDr. Kristína Hušeková	100	1.00
13.	MSc. Javad Keshtar	10	0.03
14.	Ing. Eva Kováčová	100	1.00
15.	Sergei Krylov	10	0.10
16.	Ing. Martin Kucharovič	10	0.10
17.	Ing. Tibor Melíšek	60	0.63
18.	RNDr. Katarína Neilinger	80	0.80
19.	MSc. Saviz Parsa Saeb	10	0.03
20.	Mgr. Michal Pecz	50	0.21
21.	Ing. Ondrej Pohorelec	100	0.40
22.	Mgr. Mária Sekáčová	60	0.60
23.	Mgr. Peter Šichman	100	0.70
24.	Ing. Marcel Talacko	50	0.50
25.	Mgr. Iuliia Vetrova	10	0.10
26.	Mgr. Tatiana Vojteková	10	0.10
Odborní pracovníci s VŠ vzdelaním (ostatní zamestnanci)			
1.	Mgr. Miroslava Blázyová	100	1.00
2.	PhDr. Anna Gömöryová	100	1.00
3.	Ing. Pavol Mozola	100	1.00
4.	Mgr. Vojtech Ogrodnik	40	0.40
5.	Ing. Marta Zofcsáková	100	1.00
Odborní pracovníci ÚSV			
1.	Juraj Arbet	100	1.00
2.	Ján Dérer	80	0.80

3.	Michal Gerboc	100	1.00
4.	Iveta Grófova	100	1.00
5.	Martin Grujbár	100	1.00
6.	Ľubomír Kopera	100	1.00
7.	Magdaléna Krajčírová	100	1.00
8.	Peter Martiš	100	1.00
9.	Jakub Mojžiš	50	0.50
10.	Jana Ryzá	100	1.00
11.	Alena Seifertová	100	1.00
12.	Edita Sýkorová	50	0.50
13.	Edita Šimeková	100	1.00
14.	Stanislav Štefánik	100	1.00
15.	Juraj Tančár	40	0.40
16.	Iveta Tóthová	50	0.50
17.	Margita Valentínová	40	0.45

Ostatní pracovníci

1.	Jolana Častková	100	1.00
2.	Kvetoslava Hamburgová	100	1.00
3.	Milan Kantner	50	0.50
4.	Mária Poórová	50	0.50
5.	Iveta Putiková	100	1.00
6.	Ivo Šimek	60	0.60
7.	Róbert Vanek	100	1.00

Zoznam zamestnancov, ktorí odišli v priebehu roka

	Meno s titulmi	Dátum odchodu	Ročný prepočítaný úväzok
Samostatní vedeckí pracovníci			
1.	Ing. Jozef Pitel, CSc.	15.9.2021	0.00
Odborní pracovníci s VŠ vzdelaním (výskumní a vývojoví zamestnanci)			
1.	MSc. Asef Ghabeli Juybari, PhD.	31.8.2021	0.07

Zoznam doktorandov

	Meno s titulmi	Škola/fakulta	Študijný odbor
Interní doktorandi hrazení z prostředků SAV			
1.	Mgr. Konstantin Bublikov	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika

2.	Ing. Marek Búran	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
3.	Mgr. Fridrich Egyenes	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
4.	Mgr. Jana Hrdá	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
5.	Ing. Fedor Hrubíšák	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
6.	MSc. Javad Keshtar	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
7.	Sergei Krylov	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
8.	Ing. Martin Kucharovič	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
9.	Mgr. Katarína Neilinger	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
10.	MSc. Saviz Parsa Saeb	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
11.	Ing. Ondrej Pohorelec	Fakulta elektrotechniky a informatiky STU	5.2.13 elektronika
12.	Mgr. Peter Šichman	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
13.	Ing. Marcel Talacko	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
14.	Mgr. Iuliia Vetrova	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
15.	Mgr. Tatiana Vojteková	Fakulta matematiky, fyziky a informatiky UK	4.1.1 fyzika

Interní doktorandi hrazení z iných zdrojov

organizácia nemá interných doktorandov hrazených z iných zdrojov

Externí doktorandi

1.	Ing. Bronislava Gelušiaková	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
2.	Ing. Ivan Kandrata	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
3.	Ing. Edita Mikulášová	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo

Zoznam zamestnancov prijatých do jedného roka od získania PhD.

	Meno s titulmi	Dátum obhajoby	Dátum prijatia	Úväzok (v %)
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Zoznam emeritných vedeckých zamestnancov

	Meno s titulmi
1.	Ing. František Dubecký, CSc.

Príloha B

Projekty riešené v organizácii

Medzinárodné projekty

Programy: Medzivládna dohoda

1.) Technológia a vlastnosti supravodivých a magnetických oxidových vrstiev pre moderné elektronické aplikácie (*Technology and properties of superconducting and magnetic oxide films for modern electronic application*)

Zodpovedný riešiteľ: Štefan Chromik
Trvanie projektu: 1.1.2019 / 31.12.2021
Evidenčné číslo projektu:
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 1 - Poľsko: 1
Čerpané financie: -

Programy: COST

2.) Európska sieť pre inovatívnu a pokročilú epitaxiu (*European Network for Innovative and Advanced Epitaxy*)

Zodpovedný riešiteľ: Ján Kuzmík
Trvanie projektu: 1.11.2021 / 30.10.2025
Evidenčné číslo projektu: CA20116
Organizácia je koordinátorom projektu: nie
Koordinátor: Centre des Nanosciences et des Nanotechnologies, C2N-CNRS-UMR9001, Université Paris-Saclay, France
Počet spoluriešiteľských inštitúcií: 31 - Rakúsko: 1, Belgicko: 1, Bulharsko: 1, Bosna a Hercegovina: 1, Cyprus: 1, Česko: 1, Nemecko: 1, Dánsko: 1, Španielsko: 1, Estónsko: 1, Fínsko: 1, Veľká Británia: 1, Grécko: 1, Chorvátsko: 1, Maďarsko: 1, Švajčiarsko: 1, Írsko: 1, Izrael: 1, Taliansko: 1, Litva: 1, Luxembursko: 1, Lotyšsko: 1, Moldavsko: 1, Holandsko: 1, Nórsko: 1, Poľsko: 1, Portugalsko: 1, Rumunsko: 1, Srbsko: 1, Švédsko: 1, Turecko: 1
Čerpané financie: -

3.) Ultrarýchla magneto-optoelektronika pre nedisipatívnu informačnú technológiu (*Ultrafast opto-magneto-electronics for non-dissipative information technology*)

Zodpovedný riešiteľ: Michal Mruczkiewicz
Trvanie projektu: 3.10.2018 / 2.10.2022
Evidenčné číslo projektu: CA17123
Organizácia je koordinátorom projektu: nie
Koordinátor: Radboud University, Nijmegen

Počet spoluriešiteľských inštitúcií: 33 - Belgicko: 1, Bulharsko: 2, Česko: 3, Nemecko: 1, Dánsko: 2, Španielsko: 1, Fínsko: 1, Francúzsko: 2, Veľká Británia: 1, Grécko: 2, Chorvátsko: 1, Maďarsko: 1, Švajčiarsko: 1, Island: 2, Taliansko: 2, Holandsko: 1, Nórsko: 1, Poľsko: 1, Portugalsko: 1, Rumunsko: 1, Srbsko: 2, Slovinsko: 1, Švédsko: 1, Turecko: 1

Čerpané financie: -

4.) Vysokoteplotná supravodivosť pre zrýchlenie prechodu k čistejšej energii (*High-Temperature Superconductivity for Accelerating the Energy Transition*)

Zodpovedný riešiteľ: Enric Pardo
Trvanie projektu: 8.10.2020 / 7.10.2024
Evidenčné číslo projektu: CA19108
Organizácia je koordinátorom projektu: nie
Koordinátor: NOVA.ID.FCT , Caparica
Počet spoluriešiteľských inštitúcií: 27 - Rakúsko: 1, Belgicko: 1, Bulharsko: 1, Bosna a Hercegovina: 1, Brazília: 1, Nemecko: 1, Dánsko: 1, Španielsko: 3, Fínsko: 1, Francúzsko: 1, Veľká Británia: 1, Grécko: 1, Izrael: 1, Taliansko: 1, Luxembursko: 1, Poľsko: 1, Portugalsko: 2, Rumunsko: 1, Srbsko: 2, Slovinsko: 1, Turecko: 2, Ukrajina: 1

Čerpané financie: -

Programy: EUREKA

5.) Filamentované pásy z vysokoteplotného supravodiča pre použitie vo fúzii (*Filamentized high temperature superconductor tapes for fusion*)

Zodpovedný riešiteľ: Fedor Gömöry
Trvanie projektu: 1.10.2021 / 31.5.2024
Evidenčné číslo projektu: Eurostars 2 - E115264
Organizácia je koordinátorom projektu: nie
Koordinátor: SUBRA A/S
Počet spoluriešiteľských inštitúcií: 2 - Nemecko: 1, Dánsko: 1
Čerpané financie: MŠ SR: 15902 €

Programy: Bilaterálne - iné

6.) Dichalkogenidy prechodových kovov s topologickými fázami: predikcie, syntéza a vlastnosti (*Topological transition-metal dichalcogenides: prediction, synthesis and properties*)

Zodpovedný riešiteľ: Martin Hulman
Trvanie projektu: 1.4.2021 / 31.12.2022
Evidenčné číslo projektu: SASA-SAS 21-02
Organizácia je koordinátorom projektu: áno

Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: SAV: 1500 €

7.) Príprava a charakterizácia veľmi tenkých vrstiev TMD materiálov na atomárnej škále
(The preparation and atomic-scale characterization of ultrathin films of TMD materials)

Zodpovedný riešiteľ: Martin Hulman
Trvanie projektu: 1.4.2021 / 31.12.2022
Evidenčné číslo projektu: SK-AT-20-0020
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 2500 €

8.) Optimalizácia škálovateľného rastu tenkých vrstiev dichalkogenidov prechodných kovov a nové heteroštruktúry na použitie v elektronike a pokročilé senzory
(Optimization of the scalable growth of transition metal dichalcogenide thin films and novel heterostructures for application in electronics and advanced sensors)

Zodpovedný riešiteľ: Michaela Sojková
Trvanie projektu: 1.1.2021 / 31.12.2022
Evidenčné číslo projektu: SAV-CNR
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: SAV: 3000 €

Dosiahnuté výsledky:

Sojková, M., Dobročka, E., Hutár, P., Tašková, V., Pribusová Slušná, L., Stoklas, R., Píš, I., Bondino, F., Munnik, F., and Hulman, M.: High carrier mobility epitaxially aligned PtSe₂ films grown by one-zone selenization, Applied Surface Sci 538 (2021) 147936.

Hrdá, J., Tašková, V., Vojteková, T., Pribusová Slušná, L., Dobročka, E., Píš, I., Bondino, F., Hulman, M., and Sojková, M.: Tuning the charge carrier mobility in few-layer PtSe₂ films by Se: Pt ratio, RSC Adv. 11 (2021) 27292.

9.) Pulzná laserová depozícia 2D polovodičov na nitrídy pre pokročilú elektroniku
(PULSEd laser deposition of 2D semiconductors on nitrides for advanced electronics)

Zodpovedný riešiteľ: Marianna Španková
Trvanie projektu: 1.1.2021 / 31.12.2022
Evidenčné číslo projektu: SAV-CNR
Organizácia je koordinátorom projektu: áno

Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: SAV: 3000 €

Dosiahnuté výsledky:

Chromik, Š., Španková, M., Dobročka, E., Vanko, G., Hutár, P., Vojteková, T., Gregor, M., Cordier, Y., and Pécz, B.: MoS₂ two dimensional system prepared by PLD method on different substrates. In: Progress in applied surface, interface and thin film science – solar renewable energy news 2021 - SURFINT – SREN VII: Extended Abstract Book. Ed. B. Brunner. Bratislava: Comenius Univ. 2021, p. 22-23. ISBN 978-80-223-5296-3, pozvaná prednáška.

10.) Pokročilé mikromechanické nosníky zo širokopásmových polovodičových materiálov
(*Advanced Microcantilevers from Wide Bandgap Materials*)

Zodpovedný riešiteľ: Gabriel Vanko
Trvanie projektu: 1.3.2020 / 31.12.2021
Evidenčné číslo projektu: DS-FR-19-0051
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 2 - Rakúsko: 1, Česko: 1
Čerpané financie: APVV: 2991 €

Dosiahnuté výsledky:

Izsák, T., Vanko, G., Babchenko, O., Vincze, A., Vojs, M., Zaťko, B., and Kromka, A.: Influence of SiON interlayer on the diamond/GaN heterostructures studied by Raman and SIMS measurements, Mater. Sci Engn. B 273 (2021) 115434. IF 4.051, Q 2

Vanko, G., Chromik, Š., Pécz, B., Koós, A., Dérer, J., Gerboc, M., Španková, M., Sojková, M., Impact of MoS₂ 2D layers on performance of AlGaIn/GaN high electron mobility transistors. In: 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina 2021. Výveska.

11.) Syntéza a charakterizácia funkčných heteroštruktúr 2D TMD-diamant pre senzorové prvky
(*Synthesis and characterization of 2D TMD-diamond functional heterostructures for sensing elements*)

Zodpovedný riešiteľ: Gabriel Vanko
Trvanie projektu: 1.1.2021 / 31.12.2022
Evidenčné číslo projektu: áno
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: SAV: 1500 €

Dosiahnuté výsledky:

Kočí, M., Izsák, T., Vanko, G., Sojková, M., Husák, M., and Kromka, A.: Development and measurement of gas sensors based on diamond and transition metal. In Proc. 9th Inter. Conf. on

Advances in Electron. Photon. Technol. - ADEPT. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 115-118.

Programy: ERANET

12.) Epitaxné vrstvy tranzitných kovov dichalkogenidov pripravených na polovodičoch so širokým zakázaným pásmom pre modernú elektroniku (*Epitaxial transition metal dichalcogenides onto wide bandgap hexagonal superconductors for advanced electronics*)

Zodpovedný riešiteľ: Štefan Chromik
Trvanie projektu: 1.4.2020 / 31.3.2023
Evidenčné číslo projektu:
Organizácia je koordinátorom projektu: nie
Koordinátor: Consiglio Nazionale delle Ricerche – Istituto per la Microelettronica e Microsistemi
Počet spoluriešiteľských inštitúcií: 4 - Francúzsko: 1, Maďarsko: 1, Taliansko: 2
Čerpané financie: EÚ: 13133 €
SAV: 12939 €

Dosiahnuté výsledky:

Chromik, Š., Španková, M., Dobročka, E., Vanko, G., Hutár, P., Vojteková, T., Gregor, M., Cordier, Y., and Pécz, B.: MoS₂ two dimensional system prepared by PLD method on different substrates. In: Progress in applied surface, interface and thin film science – solar renewable energy news 2021 - SURFINT – SREN VII: Extended Abstract Book. Ed. B. Brunner. Bratislava: Comenius Univ. 2021, p. 22-23. ISBN 978-80-223-5296-3, pozvaná prednáška.

Chromik, Š., Španková, M., Dobročka, E., Koos, A., Németh, M., Pécz, B., Michon, A., Al Khalfioui, M., Frayssinet, E., Cordier, Y., Cannas, M., Agnello, S., Panasci, S.E., Schilir?, E., Fiorenza, P., Roccaforte, F., and Giannazzo, F.: Pulsed laser deposition and multiscale characterization of MoS₂ on GaN for advanced electronics. In EMRS Spring Meeting 2021, Online Symp. I "Advanced Functional Films grown by Pulsed Deposition Methods.

Vanko, G., Chromik, Š., Pécz, B., Koos, A., Dérer, J., Gerbec, M., Španková, M., and Sojková, M.: Impact of MoS₂ 2D layers on performance of AlGaIn/GaN high electron mobility transistors. In: 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina 2021. Výveska.

13.) Terahertzová spintronika a magnonika feromagnetov a antiferomagnetov (*Terahertz spintronics and magnonics of ferro- and antiferromagnets*)

Zodpovedný riešiteľ: Michal Mruczkiewicz
Trvanie projektu: 1.7.2018 / 30.6.2021
Evidenčné číslo projektu: 177550
Organizácia je koordinátorom projektu: nie
Koordinátor: Swiss Federal Institute of Technology in Lausanne
Počet spoluriešiteľských inštitúcií: 1 - Rusko: 1
Čerpané financie: SAV: 10417 €

Programy: Horizont 2020

14.) 3D ploter na báze nanášania po atómových vrstvách (*The atomic-layer 3D plotter*)

Zodpovedný riešiteľ: Karol Fröhlich
Trvanie projektu: 1.5.2020 / 30.4.2022
Evidenčné číslo projektu: ID: 950785
Organizácia je koordinátorom projektu: nie
Koordinátor: Friedrich-Alexander-Universitaet Erlangen-Nuernberg
Počet spoluriešiteľských inštitúcií: 3 - Nemecko: 1, Dánsko: 1, Litva: 1
Čerpané financie: EÚ: 114643 €

15.) Uskutočňovanie aktivít popísaných v Ceste k fúzii počas Horizon2020 cestou spoločného programu členov konzorcia EUROfusion (*Implementation of activities described in the Roadmap to Fusion during Horizon2020 through a Joint programme of the EUROfusion consortium*)

Zodpovedný riešiteľ: Fedor Gömöry
Trvanie projektu: 1.1.2014 / 31.12.2022
Evidenčné číslo projektu: H2020-633053
Organizácia je koordinátorom projektu: nie
Koordinátor: Max-Planck Gesellschaft zur Forderung der Wissenschaften E.V.
Počet spoluriešiteľských inštitúcií: 31 - Rakúsko: 1, Belgicko: 0, Bulharsko: 0, Cyprus: 0, Česko: 2, Nemecko: 3, Dánsko: 1, Španielsko: 2, Estónsko: 2, Fínsko: 1, Francúzsko: 1, Veľká Británia: 1, Grécko: 3, Chorvátsko: 1, Maďarsko: 1, Švajčiarsko: 1, Írsko: 1, Taliansko: 1, Litva: 1, Lotyšsko: 1, Holandsko: 1, Poľsko: 1, Portugalsko: 1, Rumunsko: 1, Slovensko: 1, Slovinsko: 1, Švédsko: 1
Čerpané financie: EÚ: 45707 €

16.) Supravodivé magnety pre European Magnet Field Laboratory (*Superconducting magnets for the European Magnet Field Laboratory*)

Zodpovedný riešiteľ: Enric Pardo
Trvanie projektu: 1.1.2021 / 31.12.2024
Evidenčné číslo projektu: H2020-951714
Organizácia je koordinátorom projektu: nie
Koordinátor: Centre National De La Recherche Scientifique CNRS
Počet spoluriešiteľských inštitúcií: 9 - Belgicko: 1, Nemecko: 3, Francúzsko: 1, Veľká Británia: 1, Švajčiarsko: 1, Holandsko: 2
Čerpané financie: EÚ: 5499 €
SAV: 4018 €

17.) Podpora inovácií v urýchľovačovom výskume a technológií (*Innovation Fostering in Accelerator Science and Technology*)

Zodpovedný riešiteľ: Eugen Seiler
Trvanie projektu: 1.5.2021 / 30.4.2025
Evidenčné číslo projektu: H2020-101004730
Organizácia je koordinátorom projektu: nie
Koordinátor: European Organization For Nuclear Research - CERN
Počet spoluriešiteľských inštitúcií: 20 - Rakúsko: 1, Nemecko: 2, Španielsko: 2, Estónsko: 1, Francúzsko: 4, Veľká Británia: 1, Maďarsko: 1, Švajčiarsko: 2, Taliansko: 1, Lotyšsko: 1, Holandsko: 1, Poľsko: 1, Slovensko: 1, Švédsko: 1
Čerpané financie: EÚ: 3941 €
SAV: 2679 €

18.) Výskum a inovácie urýchľovačov pre európsku vedu a spoločnosť (*Accelerator research and innovation for european science and society*)

Zodpovedný riešiteľ: Eugen Seiler
Trvanie projektu: 1.5.2017 / 30.4.2021
Evidenčné číslo projektu: H2020-730871
Organizácia je koordinátorom projektu: nie
Koordinátor: CERN
Počet spoluriešiteľských inštitúcií: 21 - Rakúsko: 1, Belgicko: 1, Nemecko: 1, Španielsko: 2, Francúzsko: 2, Veľká Británia: 2, Maďarsko: 1, Švajčiarsko: 1, Taliansko: 2, Lotyšsko: 1, Malta: 1, Holandsko: 1, Poľsko: 1, Portugalsko: 1, Rumunsko: 1, Slovinsko: 1, Švédsko: 1
Čerpané financie: EÚ: 8265 €
SAV: 1339 €

Dosiahnuté výsledky:

Ries, R., Seiler, E., Gömöry, F., Medvids, A., Onufrijevs, P., Pira, C., Chyhyrynets, E., Malyshev, O.B., and Valizadeh, R.: Improvement of the first flux entry field by laser post-treatment of the thin Nb film on Cu, Supercond. Sci Technol. 34 (2021) 065001. IF 3.219, Q 2

Leith, S., Vogel, M., Fan, J., Seiler, E., Ries, R., and Jiang, X.: Superconducting NbN thin films for use in superconducting radio frequency cavities, Supercond. Sci Technol. 34 (2021) 025006. IF 3.219, Q 2

Domáce projekty

Programy: VEGA

1.) Transport magnetických skyrmiónov v antidot mriežkach: Efekt teploty a kombinácie rôznych transportných mechanizmov (*Transport of magnetic skyrmions in antidot lattices: Effect of temperature and combination of transport mechanisms*)

Zodpovedný riešiteľ: Juraj Feilhauer
Trvanie projektu: 1.1.2021 / 31.12.2023
Evidenčné číslo projektu: 2/0177/21
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 3433 €

2.) Tenkovrstvové štruktúry pre využitie v energetike (*Thin film structures for energy applications*)

Zodpovedný riešiteľ: Karol Fröhlich
Trvanie projektu: 1.1.2018 / 31.12.2021
Evidenčné číslo projektu: 2/0136/18
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 8284 €

Dosiahnuté výsledky:

Sahoo, P.P., Mikolášek, M., Hušeková, K., Dobročka, E., Šoltýs, J., Ondrejka, P., Kemény, M., Harmatha, L., Mičušík, M., and Fröhlich, K.: Si-based metal-insulator-semiconductor structures with RuO₂-(IrO₂) films for photoelectrochemical water oxidation, ACS Applied Energy Mater. 4 (2021) 11162-11172.

Kundrata, I., Mošková, A., Moško, M., Mičušík, M., Dobročka, E., and Fröhlich, K.: Atomic layer deposition of lithium metaphosphate from H₃PO₄ and P₄O₁₀ facilitated via direct liquid injection: Experiment and theory, J. Vacuum Sci Technol. A 39 (2021) 062407.

Mošková, A., Moško, M., Precner, M., Mikolášek, M., Rosová, A., Mičušík, M., Štrbík, V., Šoltýs, J., Gucmann, F., Dobročka, E., and Fröhlich, K.: Doping efficiency and electron transport in Al-doped ZnO films grown by atomic layer deposition, J. Applied Phys. 130 (2021) 035106.

3.) Tepelná stabilizácia vysokoteplotných supravodivých pásov pre použitie v obmedzovačoch skratových prúdov (*Thermal stabilization of high-temperature superconducting tapes for fault current limiters*)

Zodpovedný riešiteľ: Fedor Gömöry
Trvanie projektu: 1.1.2021 / 31.12.2024

Evidenčné číslo projektu: 1/0205/21
Organizácia je koordinátorom projektu: nie
Koordinátor: Materiálovotechnologická fakulta STU
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 3709 €

Dosiahnuté výsledky:

Gömöry, F. and Šouc, J.: Current–voltage curve of the high temperature superconductor with local reduction of critical current, *Supercond. Sci Technol.* 34 (2021) 12LT01.

4.) Výskum a vývoj kontaktov pre nové materiály a súčiastky (*Contact engineering for advanced materials and devices*)

Zodpovedný riešiteľ: Dagmar Gregušová
Trvanie projektu: 1.1.2021 / 31.12.2024
Evidenčné číslo projektu: 2/0068/21
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 12676 €

Dosiahnuté výsledky:

Gregušová, D., Dobročka, E., Eliáš, P., Stoklas, R., Blaho, M., Pohorelec, O., Haščík, Š., Kučera, M., and Kúdela, R.: GaAs nanomembranes in the high electron mobility transistor technology, *Materials* 14 (2021) 3461.

Gregušová, D., Pohorelec, O., Ťapajna, M., Blaho, M., Gucmann, F., Stoklas, R., Hasenöhrl, S., Laurenčíková, A., Šichman, P., Haščík, Š., and Kuzmík, J.: Polarization engineering in GaN-based normally-off transistors. In: 2021 Inter. Meeting for Future of Electron Devices - IMFEDK2021. Kansai, Virtual 2021. Invited. IEEE: 2021, p. 1-4. ISBN 978-1-6654-4200-8, pozvaná prednáška.

Mikulics, M., Kordoš, P., Gregušová, D., Gaži, Š., Novák, J., Sofer, Z., Mayer, J., and Hardtdegen, H.: Local increase in compressive strain (GaN) in gate recessed AlGaIn/GaN MISHFET structures induced by an amorphous AlN dielectric layer, *Semicond. Sci Technol.* 36 (2021) 095040.

Pohorelec, O., Gregušová, D., Hasenöhrl, S., Dobročka, E., Stoklas, R., Vančo, L., Gregor, M., and Kuzmík, J.: Mg doping of InAlN layers. In *Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT*. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 147-150.

5.) Pokrokový MgB₂ supravodič bez difúznej bariéry (*Advanced MgB₂ superconductor without diffusion barrier*)

Zodpovedný riešiteľ: Pavol Kováč
Trvanie projektu: 1.1.2020 / 31.12.2021
Evidenčné číslo projektu: 2/0140/19
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV

Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 17399 €

Dosiahnuté výsledky:

Kováč, P., Hušek, I., Hain, M., Kopera, L., Melišek, T., and Berek, D.: Longitudinal uniformity of MgB₂ wires made by an internal magnesium diffusion process, *Supercond. Sci Technol.* 34 (2021) 095007.

Kováč, P., Hušek, I., Melišek, T., Rosová, A., and Dobročka, E.: Effect of grain size selection in ex-situ made MgB₂ wires, *Physica C* 583 (2021) 1353826.

6.) Pokročilé III-N súčiastky pre prenos informácie a energie (*Advanced III-N devices for energy and information transfer*)

Zodpovedný riešiteľ: Ján Kuzmík
Trvanie projektu: 1.1.2018 / 31.12.2021
Evidenčné číslo projektu: 2/0012/18
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 8699 €

Dosiahnuté výsledky:

Gucmann, F., Kučera, M., Hasenöhrl, S., Eliáš, P., Rosová, A., Dobročka, E., Stoklas, R., and Kuzmík, J.: InN crystal habit, structural, electrical, and optical properties affected by sapphire substrate nitridation in N-polar InN/InAlN heterostructures, *Semicond. Sci Technol.* 36 (2021) 075025.

Stoklas, R., Chvála, Š., Šichman, P., Hasenöhrl, S., Haščík, Š., Priesol, J., Šatka, A., and Kuzmík, J.: Analysis and modeling of vertical current conduction and breakdown mechanisms in semi-insulating GaN grown on GaN: role of deep levels, *IEEE Trans. Electron Dev.* 68 (2021) 2365.

Pohorelec, O., Gregušová, D., Hasenöhrl, S., Dobročka, E., Stoklas, R., Vančo, L., Gregor, M., and Kuzmík, J.: Mg doping of InAlN layers. In *Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. – ADEPT. Žilina: EDIS 2021.* ISBN 978-80-554-1735-6. P. 147-150.

Stoklas, R., S. Hasenöhrl, E. Dobročka, F. Gučmann, and J. Kuzmík: Temperature dependence of Hall-effect mobility of thin InN layers grown by MOCVD on InAlN buffer. In: *12th Inter. Conf. Solid State Surfaces Interfaces Conf. - SSSI 2021. Smolenice 2021.* Výveska.

Rosová, A., Kučera, M., Dobročka, E., Hasenöhrl, S., Gučmann, F., Eliáš, P., and Kuzmík, J.: 3D growth of InN on sapphire with a GaN buffer – microstructure analysis. In: *Progress in applied surface, interface and thin film science – solar renewable energy news 2021 - SURFINT – SREN VII: Extended Abstract Book.* Ed. B. Brunner. Bratislava: Comenius Univ. 2021, p. 53-54. ISBN 978-80-223-5296-3. Výveska.

Kuzmík, J., Adikimenakis, A., Ťapajna, M., Gregušová, D., Haščík, Š., Dobročka, E., Tsagaraki, K.,

Stoklas, R., and Georgakilas, A.: InN: breaking the limits of solid-state electronics, AIP Adv. 11 (2021) 125325.

7.) Rast a charakterizácia materiálu zo skupiny dichalkogenidov prechodových kovov: diselenid titánu (*Growth and characterization of a material from the group of transition metal dichalcogenides: titanium diselenide*)

Zodpovedný riešiteľ: Marián Precner
Trvanie projektu: 1.1.2019 / 31.12.2021
Evidenčné číslo projektu: 2/0131/19
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 6220 €

Dosiahnuté výsledky:

Mošková, A., Moško, M., Precner, M., Mikolášek, M., Rosová, A., Mičušík, M., Štrbík, V., Šoltýs, J., Gucmann, F., Dobročka, E., and Fröhlich, K.: Doping efficiency and electron transport in Al-doped ZnO films grown by atomic layer deposition, J. Applied Phys. 130 (2021) 035106.

Kozak, A., Precner, M., Hutár, P., Bodík, M., Vegso, K., Halahovets, Y., Hulman, M., Siffalovic, P., and Ľapajna, M.: Angular dependence of nanofriction of mono- and few-layer MoSe₂, Applied Surface Sci 567 (2021) 150807.

Sojková, M., Hrdá, J., Volkov, S., Vegso, K., Shaji, A., Vojteková, T., Pribusová Slušná, L., Gál, N., Dobročka, E., Šiffalovič, P., Roch, T., Gregor, M., and Hulman, M.: Growth of PtSe₂ few-layer films on NbN superconducting substrate, Applied Phys. Lett. 119 (2021) 013101.

8.) Nízkostratový supravodivý kábel typu CORC z REBCO vodičov (*Low-loss superconducting CORC-like cable from REBCO conductors*)

Zodpovedný riešiteľ: Eugen Seiler
Trvanie projektu: 1.1.2021 / 31.12.2023
Evidenčné číslo projektu: 2/0036/21
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 22370 €

9.) Príprava, charakterizácia a dopovanie ultratenkých vrstiev dichalkogenidov prechodných kovov (*Fabrication, characterization, and doping of ultra-thin layers of transition metal dichalcogenides*)

Zodpovedný riešiteľ: Michaela Sojková
Trvanie projektu: 1.1.2021 / 31.12.2024
Evidenčné číslo projektu: 2/0059/21
Organizácia je áno

koordinátorom projektu:

Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 13049 €

Dosiahnuté výsledky:

Sojková, M., Hrdá, J., Volkov, S., Vegso, K., Shaji, A., Vojteková, T., Pribusová Slušná, L., Gál, N., Dobročka, E., Šiffalovič, P., Roch, T., Gregor, M., and Hulman, M.: Growth of PtSe₂ few-layer films on NbN superconducting substrate, *Applied Phys. Lett.* 119 (2021) 013101.

Hrdá, J., Tašková, V., Vojteková, T., Pribusová Slušná, L., Dobročka, E., Píš, I., Bondino, F., Hulman, M., and Sojková, M.: Tuning the charge carrier mobility in few-layer PtSe₂ films by Se: Pt ratio, *RSC Adv.* 11 (2021) 27292.

10.) Vývoj UV senzora na báze GaN pre vesmírne aplikácie (*GaN-based heterostructure as a promising UV sensor for space application*)

Zodpovedný riešiteľ: Roman Stoklas
Trvanie projektu: 1.1.2019 / 31.12.2022
Evidenčné číslo projektu: 2/0114/19
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 6214 €

Dosiahnuté výsledky:

Stoklas, R., Chvála, A., Šichman, P., Hasenöhrl, S., Haščík, Š., Priesol, J., Šatka, A., and Kuzmík, J.: Analysis and modeling of vertical current conduction and breakdown mechanisms in semi-insulating GaN grown on GaN: role of deep levels, *IEEE Trans. Electron Dev.* 68 (2021) 2365. IF 2.917, Q 1

Stoklas, R., Hasenöhrl, S., Dobročka, E., Guemann, F., Kuzmík, J.: Temperature dependence of Hall-effect mobility of thin InN layers grown by MOCVD on InAlN buffer. In *Proc. 7th Inter. Conf. In Applied Surface, Interface and Thin Film Science – SURFINT SREN 2021*. Online conference. ISBN 978-80-223-5296-3. P. 65-66.

Stoklas, R., Hasenöhrl, S., Dobročka, E., Guemann, F., Kuzmík, J.: Temperature dependence of Hall-effect mobility of thin InN layers grown by MOCVD on InAlN buffer. In *Proc. 7th Inter. Conf. In Applied Surface, Interface and Thin Film Science – SURFINT SREN 2021*. Online conference.

11.) Štúdium magnetických efektov na nanoúrovni (*Study of magnetic effects at nanoscale*)

Zodpovedný riešiteľ: Ján Šoltýs
Trvanie projektu: 1.1.2019 / 31.12.2021
Evidenčné číslo projektu: 2/0160/19
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV

Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 17399 €

Dosiahnuté výsledky:

Vetrova, Iu.V., Zelent, M., Šoltýs, J., Gubanov, V.A., Sadovnikov, A.V., Ščepka, T., Dérier, J., Stoklas, R., Cambel, V., and Mruczkiewicz, M.: Investigation of self-nucleated skyrmion states in the ferromagnetic/nonmagnetic multilayer dot, *Applied Phys. Lett.* 118 (2021) 212409.

Zelent, M., Vetrova, Iu.V., Li, X., Zhou, Y., Šoltýs, J., Gubanov, V.A., Sadovnikov, A.V., Ščepka, T., Dérier, J., Stoklas, R., Cambel, V., and Mruczkiewicz, M.: Skyrmion formation in nanodisks using magnetic force microscopy tip, *Nanomater.* 11 (2021) 2627.

12.) Perovskitovské tenké vrstvy a štruktúry vhodné pre modernú elektroniku a senzoriku
(*Perovskite thin films and structures for modern electronics and sensorics*)

Zodpovedný riešiteľ: Marianna Španková
Trvanie projektu: 1.1.2018 / 31.12.2021
Evidenčné číslo projektu: 2/0117/18
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 4527 €

Dosiahnuté výsledky:

Španková, M., Sojková, M., Dobročka, E., Hutár, P., Bodík, M., Munnik, F., Hulman, M., and Chromik, Š.: Influence of precursor thin-film quality on the structural properties of large-area MoS₂ films grown by sulfurization of MoO₃ on c-sapphire, *Applied Surface Sci* 540 (2021) 148240.

Talacko, M., Chromik, Š., Španková, M., Štrbík, V., Gál, N., Mičušík, M., Camerlingo, C., and Jung, G.: Aging of electron-written YBCO superconducting thin film structures, *J. Mater. Sci: Mater. Electron.* 32 (2021) 28687–28694.

Bareli, G., Chromik, Š., Camerlingo, C., Talacko, M., Rosová, A., Španková, M., Štrbík, V., Sojková, M., and Jung, G.: Substrate influence on low energy electron beam processing of YBa₂Cu₃O₇ delta thin films, *Applied Surface Sci* 535 (2021) 147624.

13.) Elektronické a optoelektronické súčiastky na báze ultra-širokopásmového Ga₂O₃ polovodiča
(*Electronic and optoelectronic devices based on ultra-wide bandgap Ga₂O₃ semiconductor*)

Zodpovedný riešiteľ: Milan Ľapajna
Trvanie projektu: 1.1.2021 / 31.12.2024
Evidenčné číslo projektu: 2/0100/21
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: VEGA: 5468 €

Dosiahnuté výsledky:

Egyenes-Pörsök, F., Hušeková, K., Dobročka, E., Guemann, F., and Ťapajna, M.: Optimization of Ohmic contact formation for α -Ga₂O₃ epitaxial layers grown by MOCVD. In Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 91-94.

Guemann, F., Hušeková, K., Dobročka, E., Nádaždy, P., Egyenes-Pörsök, F., and Ťapajna, M.: Growth and properties of epsilon-Ga₂O₃ on sapphire substrates. In Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 63-66.

Ťapajna, M., Guemann, F., Hušeková, K., Nádaždy, P., Dobročka, E., Egyenes-Pörsök, F., Priesol, J., and Šatka, A.: High-temperature annealing of α - and β -Ga₂O₃ epitaxial films grown by liquid-injection MOCVD. In: 2021 Inter. Conf. on Solid State Devices and Materials (SSDM 2021) Virtual Conf.

14.) Adaptácia algoritmu metadynamiky na problémy mikromagnetizmu (*Application of the metadynamics algorithm to micromagnetism*)

Zodpovedný riešiteľ:	Jaroslav Tóvik
Trvanie projektu:	1.1.2018 / 31.12.2021
Evidenčné číslo projektu:	2/0150/18
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	-

15.) Vysokovýkonná zakrivená röntgenová optika pripravená pokročilou technológiou nanoobrábania (*High-performance curved X-ray optics prepared by advanced nanomachining technology*)

Zodpovedný riešiteľ:	Zdenko Zápražný
Trvanie projektu:	1.1.2021 / 31.12.2023
Evidenčné číslo projektu:	2/0041/21
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	VEGA: 4933 €

Dosiahnuté výsledky:

Zápražný, Z., Zaťko, B., Korytár, D., Gál, J., Jergel, M., Halahovets, Y., and Ferrari, C.: Testing of thickness homogeneity of Si crystal membranes using GaAs Timepix detector, J. Instrument. 16 (2021) P06015.

16.) Vysokoodolné polovodičové senzory ionizujúceho žiarenia pre využitie v radiačnom

prostredí (*Radiation resistant semiconductor sensors for utilization in harsh environment*)

Zodpovedný riešiteľ: Bohumír Zaťko
Trvanie projektu: 1.1.2020 / 31.12.2023
Evidenčné číslo projektu: 2/0084/20
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 1 - Slovensko: 1
Čerpané financie: VEGA: 7634 €

Dosiahnuté výsledky:

Šagátová, A., Kováčová, E., Novák, A., Fulöp, M., and Zaťko, B.: Current-voltage characterization of GaAs detectors and their holders irradiated by high-energy electrons, *Applied Surface Sci* 552 (2021) 149474.

Zaťko, B., Hrubčín, L., Šagátová, A., Boháček, P., Ivanov, O.M., Sekáčová, M., Kováčová, E., Gurov, Y.B., and Skuratov, V.A.: Study of the pulse height defect of 4H-SiC Schottky barrier detectors in heavy ion detection, *AIP Conf. Proc.* 2411 (2021) 070007.

Šagátová, A., Zaťko, B., Kováčová, E., and Nečas, V.: Gamma spectrometry of different energies by radiation-degraded SI GaAs detectors, *AIP Conf. Proc.* 2411 (2021) 080013.

Programy: APVV

17.) Magnetické plášte z kompozitov supravodič/feromagnetikum (*Magnetic cloaks from superconductor/ferromagnet composites*)

Zodpovedný riešiteľ: Fedor Gömöry
Trvanie projektu: 1.7.2017 / 28.2.2021
Evidenčné číslo projektu: 16-0418
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: -

18.) Optimalizácia okrúhleho kábla z vysokoteplotného supravodiča pre pulzné magnetické polia (*Optimization of round high-temperature superconducting cable for pulse magnetic field*)

Zodpovedný riešiteľ: Fedor Gömöry
Trvanie projektu: 1.7.2021 / 30.6.2025
Evidenčné číslo projektu: 20-0056
Organizácia je koordinátorom projektu: nie
Koordinátor: Materiálovotechnologická fakulta STU
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 4666 €

Dosiahnuté výsledky:

Gömöry, F. and Šouc, J.: Current–voltage curve of the high temperature superconductor with local reduction of critical current, Supercond. Sci Technol. 34 (2021) 12LT01.

19.) Moderné elektronické súčiastky na báze ultraširokopásmového polovodiča Ga2O3 pre budúce vysokonapäťové aplikácie (*Modern electronic devices based on ultrawide bandgap semiconducting Ga2O3 for future high-voltage applications*)

Zodpovedný riešiteľ: Filip Gučmann
Trvanie projektu: 1.7.2021 / 30.6.2025
Evidenčné číslo projektu: 20-0220
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 2 - Slovensko: 2
Čerpané financie: APVV: 17825 €

20.) Metalické 2D dichalkogenidy prechodných kovov: príprava, štúdium vlastností a korelované stavy (*Fabrication, physics and correlated states in metallic 2D transition metal dichalcogenides*)

Zodpovedný riešiteľ: Martin Hulman
Trvanie projektu: 1.7.2020 / 30.6.2023
Evidenčné číslo projektu: 19-0365
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 2 - Slovensko: 2
Čerpané financie: APVV: 42710 €

Dosiahnuté výsledky:

Hrdá, J., Tašková, V., Vojteková, T., Pribusová Slušná, L., Dobročka, E., Píš, I., Bondino, F., Hulman, M., and Sojková, M.: Tuning the charge carrier mobility in few-layer PtSe2 films by Se: Pt ratio, RSC Adv. 11 (2021) 27292.

Kozak, A., Precner, M., Hutár, P., Bodík, M., Vegso, K., Halahovets, Y., Hulman, M., Siffalovic, P., and Ľapajna, M.: Angular dependence of nanofriction of mono- and few-layer MoSe2, Applied Surface Sci 567 (2021) 150807.

Pribusová Slušná, L., Vojteková, T., Hrdá, J., Pálková, H., Šiffalovič, P., Sojková, M., Vegso, K., Hutár, P., Dobročka, E., Varga, M., and Hulman, M.: Optical characterisation of few-layer PtSe2 nanosheet films, ACS Omega 6 (2021) 35398-35403.

Sojková, M., Hrdá, J., Volkov, S., Vegso, K., Shaji, A., Vojteková, T., Pribusová Slušná, L., Gál, N., Dobročka, E., Šiffalovič, P., Roch, T., Gregor, M., and Hulman, M.: Growth of PtSe2 few-layer films on NbN superconducting substrate, Applied Phys. Lett. 119 (2021) 013101.

Španková, M., Sojková, M., Dobročka, E., Hutár, P., Bodík, M., Munnik, F., Hulman, M., and

Chromik, Š.: Influence of precursor thin-film quality on the structural properties of large-area MoS₂ films grown by sulfurization of MoO₃ on c-sapphire, *Applied Surface Sci* 540 (2021) 148240.

21.) Dlhodosahový jav blízkosti v supravodič/feromagnet heteroštruktúrach (*Long-range proximity effect in superconductor / ferromagnet heterostructures*)

Zodpovedný riešiteľ: Štefan Chromik
Trvanie projektu: 1.7.2020 / 31.12.2023
Evidenčné číslo projektu: 19-0303
Organizácia je nie
koordinátorom projektu:
Koordinátor: FMFI UK
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 24000 €

Dosiahnuté výsledky:

Talacko, M., Chromik, Š., Španková, M., Štrbík, V., Gál, N., Mičušík, M., Camerlingo, C., and Jung, G.: Aging of electron-written YBCO superconducting thin film structures, *J. Mater. Sci: Mater. Electron.* 32 (2021) 28687–28694.

22.) Supravodivé vinutia z homogénnych MgB₂ drôtov s trubičkovými vláknami (*Superconducting coils made of uniform MgB₂ wires with tubular filaments*)

Zodpovedný riešiteľ: Pavol Kováč
Trvanie projektu: 1.7.2019 / 30.11.2021
Evidenčné číslo projektu: 18-0271
Organizácia je áno
koordinátorom projektu:
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 53500 €

Dosiahnuté výsledky:

Kováč, P., Hušek, I., Hain, M., Kopera, L., Melišek, T., and Berek, D.: Longitudinal uniformity of MgB₂ wires made by an internal magnesium diffusion process, *Supercond. Sci Technol.* 34 (2021) 095007.

Kováč, P., Kováč, J., Perez, N., Scheiter, J., Búran, M., Kopera, L., Hušek, I., Melišek, T., and Berek, D.: Low-purity Cu and Al sheathed multi-core MgB₂ wires made by IMD process, *Supercond. Sci Technol.* 34 (2021) 075010.

Búran, M., Kováč, P., Kopera, L., and Melišek, T.: I-V characteristics of MgB₂ conductors with different metallic sheaths, *Cryogenics* 120 (2021) 103370.

23.) Vertikálny GaN MOSFET pre výkonové spínacie aplikácie (*Vertical GaN MOSFET for power switching applications*)

Zodpovedný riešiteľ: Ján Kuzmík
Trvanie projektu: 1.7.2019 / 30.6.2022
Evidenčné číslo projektu: 18-0054

Organizácia je áno
koordinátorom projektu:
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských 0
inštitúcií:
Čerpané financie: APVV: 58681 €

Dosiahnuté výsledky:

Šichman, P., Haščík, Š., Gregušová, D., Hasenöhrl, S., and Kuzmík, J.: Optimization of SiCl₄ – based reactive ion etching and nickel hard mask for GaN on GaN vertical structures. In Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 163-166.

Stoklas, R., Chvála, A., Šichman, P., Hasenöhrl, S., Haščík, Š., Priesol, J., Šatka, A., and Kuzmík, J.: Analysis and modeling of vertical current conduction and breakdown mechanisms in semi-insulating GaN grown on GaN: role of deep levels, IEEE Trans. Electron Dev. 68 (2021) 2365. IF 2.917, Q 1

24.) Časovo-rozlišené štúdium rastu hybridných van der Waalových heteroštruktúr (*Real-time grow studies of hybrid van der Waals heterostructures*)

Zodpovedný riešiteľ: Nad'a Mrk'vková
Zodpovedný riešiteľ v Martin Hulman
organizácii SAV:
Trvanie projektu: 1.8.2018 / 30.6.2022
Evidenčné číslo projektu: 17-0352
Organizácia je nie
koordinátorom projektu:
Koordinátor: Centrum pre využitie pokročilých materiálov SAV
Počet spoluriešiteľských 0
inštitúcií:
Čerpané financie: APVV: 6264 €

Dosiahnuté výsledky:

Hrdá, J., Tašková, V., Vojteková, T., Pribusová Slušná, L., Dobročka, E., Piš, I., Bondino, F., Hulman, M., and Sojková, M.: Tuning the charge carrier mobility in few-layer PtSe₂ films by Se: Pt ratio, RSC Adv. 11 (2021) 27292.

Kozak, A., Precner, M., Hutár, P., Bodík, M., Vegso, K., Halahovets, Y., Hulman, M., Siffalovic, P., and Ťapajna, M.: Angular dependence of nanofriction of mono- and few-layer MoSe₂, Applied Surface Sci 567 (2021) 150807.

Sojková, M., Hrdá, J., Volkov, S., Vegso, K., Shaji, A., Vojteková, T., Pribusová Slušná, L., Gál, N., Dobročka, E., Šiffalovič, P., Roch, T., Gregor, M., and Hulman, M.: Growth of PtSe₂ few-layer films on NbN superconducting substrate, Applied Phys. Lett. 119 (2021) 013101.

Bodík, M., Sojková, M., Hulman, M., Ťapajna, M., Truchlý, M., Vegso, K., Jergel, M., Majková, E., Španková, M., and Šiffalovič, P.: Friction control by engineering the crystallographic orientation of the lubricating few-layer MoS₂ films, Applied Surface Sci 540 (2021) 148328.

Huss-Hansen, M.K., Hodas, M., Mrk'vková, N., Hagara, J., Nádaždy, P., Sojková, M., H'egh,

S.O., Vlad, A., Pandit, P., Majková, E., Šiffalovič, P., Schreiber, F., Kjelstrup-Hansen, J., and Knaapila, M.: Early-stage growth observations of orientation-controlled vacuum-deposited naphthyl end-capped oligothiophenes, *Phys. Rev. Mater.* 5 (2021) 053402.

25.) Robustné spinové vlny pre budúce magnonické aplikácie (*Robust spin waves for future magnonic applications*)

Zodpovedný riešiteľ: Michal Mruczkiewicz
Trvanie projektu: 1.7.2020 / 30.6.2023
Evidenčné číslo projektu: 19-0311
Organizácia je áno
koordinátorom projektu:
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 1 - Slovensko: 1
Čerpané financie: APVV: 31562 €

Dosiahnuté výsledky:

Bublikov, K., Tóbiš, J., Sadovnikov, A.V., and Mruczkiewicz, M.: Vortex gyrotropic mode in curved nanodots, *J. Magnetism Magnetic Mater.* 537 (2021) 168105.

Szulc, K., Mendisch, S., Mruczkiewicz, M., Casoli, F., Becherer, M., and Gubbiotti, G.: Nonreciprocal spin-wave dynamics in Pt/Co/W/Co/Pt multilayers, *Phys. Rev. B* 103 (2021) 134404.

Vetrova, Iu.V., Zelent, M., Šoltýs, J., Gubanov, V.A., Sadovnikov, A.V., Ščepka, T., Dérier, J., Stoklas, R., Cambel, V., and Mruczkiewicz, M.: Investigation of self-nucleated skyrmion states in the ferromagnetic/nonmagnetic multilayer dot, *Applied Phys. Lett.* 118 (2021) 212409.

Zelent, M., Vetrova, Iu.V., Li, X., Zhou, Y., Šoltýs, J., Gubanov, V.A., Sadovnikov, A.V., Ščepka, T., Dérier, J., Stoklas, R., Cambel, V., and Mruczkiewicz, M.: Skyrmion formation in nanodisks using magnetic force microscopy tip, *Nanomater.* 11 (2021) 2627.

26.) Fotonické labortorium na čipe: výskum a vývoj platformy plazmonického senzora pre okamžitú detekciu zložiek v roztokoch (*Photonic Lab-on-a-Chip: investigation and development of plasmonic sensor platform for immediate detection of composites in solutions*)

Zodpovedný riešiteľ: Jozef Novák
Trvanie projektu: 1.7.2021 / 31.12.2024
Evidenčné číslo projektu: 20-0437
Organizácia je nie
koordinátorom projektu:
Koordinátor: FEI STU Bratislava
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 20430 €

27.) Nanooptické sondy a senzory integrované na optickom vlákne (*Nano-optical probes and sensors integrated on optical fiber*)

Zodpovedný riešiteľ: Jozef Novák
Trvanie projektu: 1.8.2021 / 31.12.2024

Evidenčné číslo projektu: 20-0264
Organizácia je koordinátorom projektu: nie
Koordinátor: Žilinská univerzita v Žiline
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 15555 €

28.) Vysokoteplotná supravodivá cievka pre motory elektrických a hybridných lietadiel (*High temperature superconducting coils in motors for electric and hybrid aircrafts*)

Zodpovedný riešiteľ: Enric Pardo
Trvanie projektu: 1.7.2020 / 30.6.2023
Evidenčné číslo projektu: 19-0536
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 88832 €

Dosiahnuté výsledky:

Ghabeli, A., Ainslie, M., Pardo, E., Queval, L., and Mataira, R.: Modeling the charging process of a coil by an HTS dynamo-type flux pump, Supercond. Sci Technol. 34 (2021) 084002.

Ghabeli, A., Pardo, E., and Kapolka, M.: 3D modeling of a superconducting dynamo-type flux pump, Sci Rep. 11 (2021) 10296.

29.) Formovanie farebných centier v diamante a ich vlastností smerom ku kvantovej detekcii (*Evolution of colour centres in diamond and their properties towards quantum detection*)

Zodpovedný riešiteľ: Viera Skákalová
Zodpovedný riešiteľ v organizácii SAV: Marian Varga
Trvanie projektu: 1.7.2021 / 31.12.2024
Evidenčné číslo projektu: 20-0398
Organizácia je koordinátorom projektu: nie
Koordinátor: Centrum pre využitie pokročilých materiálov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: -

30.) Topologicky netriviálne magnetické a supravodivé nanoštruktúry (*Topologically nontrivial magnetic and superconducting nanostructures*)

Zodpovedný riešiteľ: Ján Šoltýs
Trvanie projektu: 1.7.2021 / 31.12.2024
Evidenčné číslo projektu: 20-0425

Organizácia je nie
koordinátorom projektu:
Koordinátor: Prírodovedecká fakulta, UPJŠ Košice
Počet spoluriešiteľských 0
inštitúcií:
Čerpané financie: APVV: 8280 €

31.) Tribologické vlastnosti 2D materiálov a príbuzných nanokompozitov (*Tribological properties of 2D materials and related nanocomposites*)

Zodpovedný riešiteľ: Milan Ťapajna
Zodpovedný riešiteľ v Martin Hulman
organizácii SAV:
Trvanie projektu: 1.8.2018 / 30.6.2022
Evidenčné číslo projektu: 17-0560
Organizácia je nie
koordinátorom projektu:
Koordinátor: Centrum pre využitie pokročilých materiálov SAV
Počet spoluriešiteľských 0
inštitúcií:
Čerpané financie: APVV: 6264 €

Dosiahnuté výsledky:

Bublikov, K., Tóvik, J., Sadovnikov, A.V., and Mruczkiewicz, M.: Vortex gyrotropic mode in curved nanodots, J. Magnetism Magnetic Mater. 537 (2021) 168105.

Hrdá, J., Tašková, V., Vojteková, T., Pribusová Slušná, L., Dobročka, E., Piš, I., Bondino, F., Hulman, M., and Sojková, M.: Tuning the charge carrier mobility in few-layer PtSe₂ films by Se: Pt ratio, RSC Adv. 11 (2021) 27292.

Kozak, A., Precner, M., Hutár, P., Bodík, M., Vegso, K., Halahovets, Y., Hulman, M., Siffalovic, P., and Ťapajna, M.: Angular dependence of nanofriction of mono- and few-layer MoSe₂, Applied Surface Sci 567 (2021) 150807.

Sojková, M., Hrdá, J., Volkov, S., Vegso, K., Shaji, A., Vojteková, T., Pribusová Slušná, L., Gál, N., Dobročka, E., Šiffalovič, P., Roch, T., Gregor, M., and Hulman, M.: Growth of PtSe₂ few-layer films on NbN superconducting substrate, Applied Phys. Lett. 119 (2021) 013101.

Huss-Hansen, M.K., Hodas, M., Mrkývková, N., Hagara, J., Nádaždy, P., Sojková, M., H?egh, S.O., Vlad, A., Pandit, P., Majková, E., Šiffalovič, P., Schreiber, F., Kjelstrup-Hansen, J., and Knaapila, M.: Early-stage growth observations of orientation-controlled vacuum-deposited naphthyl end-capped oligothiophenes, Phys. Rev. Mater. 5 (2021) 053402.

32.) Radiačne odolnejší senzor pre RTG zobrazovanie vyššej kvality (*Radiation harder sensor for X-ray imaging of higher quality*)

Zodpovedný riešiteľ: Bohumír Zaťko
Trvanie projektu: 1.7.2019 / 30.6.2023
Evidenčné číslo projektu: 18-0273
Organizácia je nie
koordinátorom projektu:
Koordinátor: Ústav jadrového a fyzikálneho inžinierstva FEI STU

Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 49271 €

Dosiahnuté výsledky:

Zaťko, B., Hrubčín, L., Šagátová, A., Osvald, J., Boháček, P., Kováčová, E., Halahovets, Y., Rozov, S.V., and Sandukovskij, V.G.: The study of Schottky barrier detectors based on high quality 4H-SiC epitaxial layer with different thickness, Applied Surface Sci 536 (2021) 147801.

Izsák, T., Vanko, G., Babchenko, O., Vincze, A., Vojs, M., Zaťko, B., and Kromka, A.: Influence of SiON interlayer on the diamond/GaN heterostructures studied by Raman and SIMS measurements, Mater. Sci Engn. B 273 (2021) 115434.

Zápražný, Z., Zaťko, B., Korytár, D., Gál, J., Jergel, M., Halahovets, Y., and Ferrari, C.: Testing of thickness homogeneity of Si crystal membranes using GaAs Timepix detector, J. Instrument. 16 (2021) P06015.

Zaťko, B., Hrubčín, L., Šagátová, A., Boháček, P., Ivanov, O.M., Sekáčová, M., Kováčová, E., Gurov, Y.B., and Skuratov, V.A.: Study of the pulse height defect of 4H-SiC Schottky barrier detectors in heavy ion detection, AIP Conf. Proc. 2411 (2021) 070007.

Šagátová, A., Zaťko, B., Kováčová, E., and Nečas, V.: Gamma spectrometry of different energies by radiation-degraded SI GaAs detectors, AIP Conf. Proc. 2411 (2021) 080013.

33.) Výskum radiačne odolných polovodičových detektorov pre jadrovú energetiku (*Research of radiation resistant semiconductor detector for nuclear energies*)

Zodpovedný riešiteľ: Bohumír Zaťko
Trvanie projektu: 1.7.2019 / 31.12.2022
Evidenčné číslo projektu: 18-0243
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 1 - Slovensko: 1
Čerpané financie: APVV: 29768 €

Dosiahnuté výsledky:

Zaťko, B., Hrubčín, L., Šagátová, A., Osvald, J., Boháček, P., Kováčová, E., Halahovets, Y., Rozov, S.V., and Sandukovskij, V.G.: The study of Schottky barrier detectors based on high quality 4H-SiC epitaxial layer with different thickness, Applied Surface Sci 536 (2021) 147801.

Izsák, T., Vanko, G., Babchenko, O., Vincze, A., Vojs, M., Zaťko, B., and Kromka, A.: Influence of SiON interlayer on the diamond/GaN heterostructures studied by Raman and SIMS measurements, Mater. Sci Engn. B 273 (2021) 115434.

Zápražný, Z., Zaťko, B., Korytár, D., Gál, J., Jergel, M., Halahovets, Y., and Ferrari, C.: Testing of thickness homogeneity of Si crystal membranes using GaAs Timepix detector, J. Instrument. 16 (2021) P06015.

Šagátová, A., Kováčová, E., Novák, A., Fulöp, M., and Zaťko, B.: Current-voltage characterization

of GaAs detectors and their holders irradiated by high-energy electrons, *Applied Surface Sci* 552 (2021) 149474.

Programy: Štrukturálne fondy EÚ Výskum a inovácie

34.) CEMEA - Vybudovanie centra pre využitie pokročilých materiálov SAV (*Building a centre for advanced material application SAS*)

Zodpovedný riešiteľ: Eva Majková
Zodpovedný riešiteľ v organizácii SAV: Milan Ťapajna
Trvanie projektu: 1.7.2019 / 30.6.2023
Evidenčné číslo projektu: 313021T081
Organizácia je koordinátorom projektu: nie
Koordinátor: Centrum pre využitie pokročilých materiálov SAV
Počet spoluriešiteľských inštitúcií: 6 - Slovensko: 6
Čerpané financie: SAV: 20744 €
EÚ: 20744 €

Programy: DoktoGranty

35.) Systematický výskum Ohmických kontaktov pre súčiastky na báze romboedrického oxidu gália (alfa-Ga₂O₃) (*Systematic investigation of Ohmic contacts for devices based on rhombohedral gallium oxide (alfa-Ga₂O₃)*)

Zodpovedný riešiteľ: Fridrich Egyenes
Trvanie projektu: 1.1.2021 / 31.12.2021
Evidenčné číslo projektu: APP0234
Organizácia je koordinátorom projektu: áno
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: SAV: 2000 €

Dosiahnuté výsledky:

Egyenes-Pörsök, F., Hušeková, K., Dobročka, E., Gucmann, F., and Ťapajna, M.: Optimization of Ohmic contact formation for alpha-Ga₂O₃ epitaxial layers grown by MOCVD. In Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 91-94.

Gucmann, F., Hušeková, K., Dobročka, E., Nádaždy, P., Egyenes-Pörsök, F., and Ťapajna, M.: Growth and properties of epsilon-Ga₂O₃ on sapphire substrates. In Proc. 9th Inter. Conf. on Advances in Electron. Photon. Technol. - ADEPT. Žilina: EDIS 2021. ISBN 978-80-554-1735-6. P. 63-66.

Ťapajna, M., Gucmann, F., Hušeková, K., Nádaždy, P., Dobročka, E., Egyenes-Pörsök, F., Priesol, J., and Šatka, A.: High-temperature annealing of alfa- and beta-Ga₂O₃ epitaxial films grown by

liquid-injection MOCVD. In: 2021 Inter. Conf. on Solid State Devices and Materials (SSDM 2021) Virtual Conf.

Programy: MoRePro

36.) Heteroštruktúry TMD/diamant: Príprava, charakterizácia a aplikácia (*TMD/diamond heterostructures: Fabrication, characterization and applications*)

Zodpovedný riešiteľ:	Marian Varga
Trvanie projektu:	1.8.2020 / 31.7.2024
Evidenčné číslo projektu:	19MRP0010
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	SAV: 44388 €

Príloha C

Publikačná činnosť organizácie (generovaná z ARL)

ABC Kapitoly vo vedeckých monografiách vydané v zahraničných vydavateľstvách

- ABC01 HULMAN, Martin**. Raman spectroscopy of graphene. In Graphene : properties, preparation, characterization, and applications. - Elsevier, 2021, p. 381-412. ISBN 978-0-08-102848-3.

ADCA Vedecké práce v zahraničných karentovaných časopisoch – impaktovaných

- ADCA01 ÁBEL, M. - ZÁCHENSKÁ, J. - DOBROČKA, Edmund - ZEMANOVÁ, Matilda**. Electrocatalytic properties of pulse plated Ni-W alloy coatings in alkaline electrolytes. In Transactions of the Institute of Metal Finishing, 2021, vol. 99, p. 23-28. (2020: 1.244 - IF, Q3 - JCR, 0.293 - SJR, Q3 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0020-2967. Dostupné na: <https://doi.org/10.1080/00202967.2020.1841453>
- ADCA02 ASUBAR, J.T.** - YATABE, Z. - GREGUŠOVÁ, Dagmar** - HASHIZUME, T. Controlling surface/interface states in GaN-based transistors: Surface model, insulated gate, and surface passivation. In Journal of Applied Physics, 2021, vol. 129, no. 121102. (2020: 2.546 - IF, Q2 - JCR, 0.699 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0021-8979. Dostupné na: <https://doi.org/10.1063/5.0039564>
- ADCA03 BARELI, G. - CHROMIK, Štefan** - CAMERLINGO, C. - TALACKO, Marcel - ROSOVÁ, Alica - ŠPANKOVÁ, Marianna - ŠTRBÍK, Vladimír - SOJKOVÁ, Michaela - JUNG, G. Substrate influence on low energy electron beam processing of YBa₂Cu₃O_{7-δ} thin films. In Applied Surface Science, 2021, vol. 535, no. 147624. (2020: 6.707 - IF, Q1 - JCR, 1.295 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2020.147624>
- ADCA04 BODIK, Michal** - SOJKOVÁ, Michaela - HULMAN, Martin - ŤAPAJNA, Milan - TRUCHLY, Martin - VÉGSO, Karol - JERGEL, Matej - MAJKOVÁ, Eva - ŠPANKOVÁ, Marianna** - ŠIFFALOVÍČ, Peter. Friction control by engineering the crystallographic orientation of the lubricating few-layer MoS₂ films. In Applied Surface Science, 2021, vol. 540, no. 1, 148328. (2020: 6.707 - IF, Q1 - JCR, 1.295 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2020.148328>
- ADCA05 BRUNCKO, J.** - KOVÁČ, Jaroslav - MICHÁLKA, M. - NETRVALOVÁ, M. - KOVÁČ, Jaroslav Jr. - VINCZE, A. - NOVÁK, Jozef. Electrical and optical properties of thin ZnO shell layers on GaP nanorods grown by pulsed laser deposition. In Thin Solid Films, 2021, vol. 725, no. 138634. (2020: 2.183 - IF, Q3 - JCR, 0.544 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0040-6090. Dostupné na: <https://doi.org/10.1016/j.tsf.2021.138634>
- ADCA06 BUBLIKOV, Konstantin** - TÓBIK, Jaroslav - SADOVNIKOV, A.V. - MRUCZKIEWICZ, Michal. Vortex gyrotropic mode in curved nanodots. In Journal of Magnetism and Magnetic Materials, 2021, vol. 537, no. 168105. (2020: 2.993 - IF, Q2 - JCR, 0.665 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0304-8853. Dostupné na: <https://doi.org/10.1016/j.jmmm.2021.168105>
- ADCA07 BÚRAN, Marek** - KOVÁČ, Pavol - KOPERA, Ľubomír - MELIŠEK, Tibor. I-V characteristics of MgB₂ conductors with different metallic sheaths. In Cryogenics,

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- ADCA08 DOBROČKA, Edmund** - ŠPANKOVÁ, Marianna - SOJKOVÁ, Michaela - CHROMIK, Štefan. Texture of YBCO layer grown on GaN/c-sapphire substrates. In Applied Surface Science, 2021, vol. 543, no. 148718. (2020: 6.707 - IF, Q1 - JCR, 1.295 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2020.148718>
- ADCA09 GHABELI, Asef - PARDO, Enric** - KAPOLKA, Milan. 3D modeling of a superconducting dynamo-type flux pump. In Scientific Reports, 2021, vol. 11, no. 10296. (2020: 4.380 - IF, Q1 - JCR, 1.240 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 2045-2322. Dostupné na: <https://doi.org/10.1038/s41598-021-89596-4>
- ADCA10 GHABELI, Asef** - AINSLIE, M.D. - PARDO, Enric - QUEVAL, L. - MATAIRA, R. Modeling the charging process of a coil by an HTS dynamo-type flux pump. In Superconductor Science and Technology, 2021, vol. 34, no. 084002. (2020: 3.219 - IF, Q2 - JCR, 1.033 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/ac0ccb>
- ADCA11 GÖMÖRY, Fedor** - ŠOUC, Ján. Current–voltage curve of the high temperature superconductor with local reduction of critical current. In Superconductor Science and Technology, 2021, vol. 34, no. 12LT01. (2020: 3.219 - IF, Q2 - JCR, 1.033 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/ac30ec>
- ADCA12 GÖMÖRY, Fedor** - ŠOUC, Ján. Stability of DC transport in HTS conductor with local critical current reduction. In Superconductor Science and Technology, 2021, vol. 34, no. 025005. (2020: 3.219 - IF, Q2 - JCR, 1.033 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/abc73e>
- ADCA13 GRACHEV, A.A. - MATVEEV, O.V. - MRUCZKIEWICZ, Michal - MOROZOVA, M.A. - BEGININ, E.N. - SHESHUKOVA, S.E. - SADOVNIKOV, A.V.**. Strain-mediated tunability of spin-wave spectra in the adjacent magnonic crystal stripes with piezoelectric layer. In Applied Physics Letters, 2021, vol. 118, no. 262405. (2020: 3.791 - IF, Q2 - JCR, 1.182 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0003-6951. Dostupné na: <https://doi.org/10.1063/5.0051429>
- ADCA14 GREGUŠOVÁ, Dagmar** - DOBROČKA, Edmund - ELIÁŠ, Peter - STOKLAS, Roman - BLAHO, Michal - POHORELEC, Ondrej - HASČÍK, Štefan - KUČERA, Michal - KÚDELA, Róbert. GaAs nanomembranes in the high electron mobility transistor technology. In Materials, 2021, vol. 14, no. 3461. (2020: 3.623 - IF, Q1 - JCR, 0.682 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 1996-1944. Dostupné na: <https://doi.org/10.3390/ma14133461>
- ADCA15 GRILLI, F.** - PARDO, Enric - MORANDI, A. - GÖMÖRY, Fedor - SOLOVYOV, Mykola - ZERMONO, V. - BRAMBILLA, R. - BENKEL, T. - RIVA, N. Electromagnetic modeling of superconductors with commercial software: possibilities with two vector potential-based formulations. In IEEE Transactions on Applied Superconductivity, 2021, vol. 31, no. 5900109. (2020: 1.704 - IF, Q3 - JCR, 0.467 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 1051-8223. Dostupné na: <https://doi.org/10.1109/TASC.2020.3013028>
- ADCA16 GUCMANN, Filip** - POMEROY, J.W. - KUBALL, M. Scanning thermal microscopy for accurate nanoscale device thermography. In Nano Today, 2021, vol. 39, no. 101206. (2020: 20.722 - IF, Q1 - JCR, 5.586 - SJR, Q1 - SJR, karentované -

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- ADCA17 GUCCMANN, Filip** - KUČERA, Michal - HASENÖHRL, Stanislav - ELIÁŠ, Peter - ROSOVÁ, Alica - DOBROČKA, Edmund - STOKLAS, Roman - KUZMÍK, Ján. InN crystal habit, structural, electrical, and optical properties affected by sapphire substrate nitridation in N-polar InN/InAlN heterostructures. In Semiconductor Science and Technology, 2021, vol. 36, no. 075025. (2020: 2.352 - IF, Q3 - JCR, 0.712 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0268-1242. Dostupné na: <https://doi.org/10.1088/1361-6641/ac06e4>
- ADCA18 HOTOVÝ, I.** - SPIESS, L. - MIKOLÁŠEK, M. - KOSTIČ, Ivan - SOJKOVÁ, Michaela - ROMANUS, H. - HULMAN, Martin - BÚC, D. - ŘEHÁČEK, V. Layered WS₂ thin films prepared by sulfurization of sputtered W films. In Applied Surface Science, 2021, vol. 544, no. 148719. (2020: 6.707 - IF, Q1 - JCR, 1.295 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2020.148719>
- ADCA19 HRDÁ, Jana - TAŠKOVÁ, Valéria - VOJTEKOVÁ, Tatiana - PRIBUSOVÁ, SLUŠNÁ, Lenka - DOBROČKA, Edmund - PÍŠ, I. - BONDINO, F. - HULMAN, Martin - SOJKOVÁ, Michaela**. Tuning the charge carrier mobility in few-layer PtSe₂ films by Se: Pt ratio. In RSC Advances, 2021, vol. 11, no. 27292. (2020: 3.361 - IF, Q2 - JCR, 0.746 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 2046-2069. Dostupné na: <https://doi.org/10.1039/d1ra04507e>
- ADCA20 HUSS-HANSEN, M.K. - HODAS, Martin - MRKÝVKOVÁ, Nad'a, Tesařová - HAGARA, Jakub - NÁDAŽDY, Peter - SOJKOVÁ, Michaela - HøEGH, S.O. - VLAD, A. - PANDIT, P. - MAJKOVÁ, Eva - ŠIFFALOVIC, Peter - SCHREIBER, F. - KJELSTRUP-HANSEN, J. - KNAAPILA, M. Early-stage growth observations of orientation-controlled vacuum-deposited naphthyl end-capped oligothiophenes. In Physical Review Materials, 2021, vol. 5, no. 053402. (2020: 3.989 - IF, Q2 - JCR, 1.439 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 2475-9953. Dostupné na: <https://doi.org/10.1103/PhysRevMaterials.5.053402>
- ADCA21 CHOUKOUROV, A.** - NIKITIN, E.D. - PLESKUNOV, P. - TAFIICHUK, R. - BILIAK, K. - PROTSAK, M. - KISHENINA, K. - HANUŠ, Jiří - DOPITA, Miloslav, Prof. Ing. - CIESLAR, M. - POPELÁŘ, T. - ONDIČ, L. - VARGA, Marian. Residual- and linker-free metal/polymer nanofluids prepared by direct deposition of magnetron-sputtered Cu nanoparticles into liquid PEG. In Journal of Molecular Liquids, 2021, vol. 336, no. 116319. (2020: 6.165 - IF, Q1 - JCR, 0.929 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0167-7322. Dostupné na: <https://doi.org/10.1016/j.molliq.2021.116319>
- ADCA22 IZSÁK, Tibor** - VANKO, Gabriel - BABCHENKO, Oleg - VINCZE, A. - VOJS, M. - ZATKO, Bohumír - KROMKA, A. Influence of SiON interlayer on the diamond/GaN heterostructures studied by Raman and SIMS measurements. In Materials Science and Engineering B - Solid-State Materials for Advanced Technology, 2021, vol. 273, no. 115434. (2020: 4.051 - IF, Q2 - JCR, 0.850 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0921-5107. Dostupné na: <https://doi.org/10.1016/j.mseb.2021.115434>
- ADCA23 KITYK, A.** - PROTSENKO, V. - DANILOV, F.I. - PAVLÍK, Viliam - HNATKO, Miroslav - ŠOLTÝS, Ján. Enhancement of the surface characteristics of Ti-based biomedical alloy by electropolishing in environmentally friendly deep eutectic solvent (Ethaline). In Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2021, vol. 613, p. 126125-1-126125-14. (2020: 4.539 - IF, Q2 - JCR, 0.762 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0927-7757. Dostupné na: <https://doi.org/10.1016/j.colsurfa.2020.126125>
- ADCA24 KORCHAGIN, S.A. - PLESHAKOVA, E. - ALEXANDROVA, I. - DOLGOV, V. -

- ADCA25 DOGADINA, E.** - SERDECHNYI, D.** - BUBLIKOV, Konstantin. Mathematical modeling of electrical conductivity of anisotropic nanocomposite with periodic structure. In Mathematics, 2021, vol. 9, no. 2948. (2020: 2.258 - IF, Q1 - JCR, 0.495 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 2227-7390. Dostupné na: <https://doi.org/10.3390/math9222948>
- ADCA26 KORCHAGIN, S.A.** - GATAULLIN, S.T. - OSIPOV, A.V. - SMIRNOV, M.V. - SUVOROV, S.V. - SERDECHNYI, D.V. - BUBLIKOV, Konstantin. Development of an optimal algorithm for detecting damaged and diseased potato tubers moving along a conveyor belt using computer vision systems. In Agronomy-Basel, 2021, vol. 11, no. 10, art. no. 1980. (2020: 3.417 - IF, Q1 - JCR, 0.707 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 2073-4395. Dostupné na: <https://doi.org/10.3390/agronomy11101980>
- ADCA27 KOVÁČ, Ján** - KAPOLKA, Milan - KOVÁČ, Pavol - KOPERA, Ľubomír - PARDO, Enric - ZHU, Y.C. - YAO, C. - MA, Y. Magnetization AC losses of iron-based Ba-122 superconducting tapes. In Cryogenics, 2021, vol. 116, no. 103281. (2020: 2.226 - IF, Q3 - JCR, 0.669 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0011-2275. Dostupné na: <https://doi.org/10.1016/j.cryogenics.2021.103281>
- ADCA28 KOVÁČ, Pavol** - HUŠEK, Imrich - HAIN, Miroslav - KOPERA, Ľubomír - MELIŠEK, Tibor - BEREK, Dušan. Longitudinal uniformity of MgB2 wires made by an internal magnesium diffusion process. In Superconductor Science and Technology, 2021, vol. 34, no. 095007. (2020: 3.219 - IF, Q2 - JCR, 1.033 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/ac191b>
- ADCA29 KOVÁČ, Pavol** - HUŠEK, Imrich - MELIŠEK, Tibor - ROSOVÁ, Alica - DOBROČKA, Edmund. Effect of grain size selection in ex-situ made MgB2 wires. In Physica C. Superconductivity and its applications, 2021, vol. 583, no. 1353826. (2020: 1.241 - IF, Q4 - JCR, 0.372 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0921-4534. Dostupné na: <https://doi.org/10.1016/j.physc.2021.1353826>
- ADCA30 KOVÁČ, Pavol** - KOVÁČ, Ján - PEREZ, N. - SCHEITER, J. - BÚRAN, Marek - KOPERA, Ľubomír - HUŠEK, Imrich - MELIŠEK, Tibor - BEREK, Dušan. Low-purity Cu and Al sheathed multi-core MgB2 wires made by IMD process. In Superconductor Science and Technology, 2021, vol. 34, no. 075010. (2020: 3.219 - IF, Q2 - JCR, 1.033 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/abece7>
- ADCA31 KOZAK, Andrii** - PRECNER, Marián - HUTÁR, Peter - BODIK, Michal - VÉGSO, Karol - HALAHOVETS, Yuriy - HULMAN, Martin - ŠIFFALOVÍČ, Peter - ĎAPAJNA, Milan. Angular dependence of nanofriction of mono- and few-layer MoSe2. In Applied Surface Science, 2021, vol. 567, no. 150807. (2020: 6.707 - IF, Q1 - JCR, 1.295 - SJR, Q1 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2021.150807>
- ADCA32 KUNDRATA, Ivan** - MOŠKOVÁ, Antónia - MOŠKO, Martin - MICUŠÍK, Matej - DOBROČKA, Edmund - FRÖHLICH, Karol. Atomic layer deposition of lithium metaphosphate from H3PO4 and P4O10 facilitated via direct liquid injection: Experiment and theory. In Journal of Vacuum Science and Technology A, 2021, vol. 39, no. 062407. (2020: 2.427 - IF, Q3 - JCR, 0.583 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents). ISSN 0734-2101. Dostupné na: <https://doi.org/10.1116/6.0001255>
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- ADCA33 STOKLAS, Roman - GEORGAKILAS, A. InN: breaking the limits of solid-state electronics. In AIP Advances, 2021, vol. 11, no. 125325. (2020: 1.548 - IF, Q4 - JCR, 0.421 - SJR, Q2 - SJR, karentované - CCC). (2021 - Current Contents, WOS, SCOPUS). ISSN 2158-3226. Dostupné na: <https://doi.org/10.1063/5.0066340>
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- ADNA02 HARMATHA, L. - MIKOLÁŠEK, M. - STUHLÍKOVÁ, Ľ. - KÓSA, A. - ŽIŠKA, Milan - HRUBČÍN, Ladislav - SKURATOV, V.A. Electrically active defects in solar cells based on amorphous silicon/crystalline silicon heterojunction after irradiation by heavy Xe ions. In Journal of Electrical Engineering, 2015, vol. 66, p. 323-328. (2014: 0.378 - IF, Q4 - JCR, 0.224 - SJR, Q3 - SJR). (2015 - INSPEC, SCOPUS, WOS). ISSN 1335-3632. Dostupné na: <https://doi.org/10.2178/jee-2015-0053>
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- ADNA03 HURAN, Jozef - VALOVIČ, Albín - KUČERA, Michal - KLEINOVÁ, Angela - KOVÁČOVÁ, Eva - BOHÁČEK, Pavol - SEKÁČOVÁ, Mária. Hydrogenated amorphous silicon carbon nitride films prepared by PECVD technology: properties. In Journal of Electrical Engineering, 2012, vol. 65, p. 333-335. (2011: 0.370 - IF, Q4 - JCR, 0.160 - SJR, Q3 - SJR). (2012 - INSPEC, SCOPUS). ISSN 1335-3632. Dostupné na: <https://doi.org/10.2478/v10187-012-0049-z>
- Citácie:
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- ADNA04 PERNÝ, M. - ŠÁLY, V. - VÁRY, M. - MIKOLÁŠEK, M. - HURAN, Jozef - PACKA, J. AC impedance spectroscopy of Al/a-SiC/c-Si(p)/Al heterostructure under illumination. In Journal of Electrical Engineering, 2014, vol. 65, p. 174-178. (2013: 0.420 - IF, Q4 - JCR, 0.187 - SJR). (2014 - INSPEC, WOS, SCOPUS). ISSN 1335-3632. Dostupné na: <https://doi.org/10.2478/jee-2014-0027>

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- ADNA05 ŠTRBÍK, Vladimír - CHROMIK, Štefan. Characterization of electrical transport in LSMO with enhanced temperature of metal-insulator transition. In Journal of Electrical Engineering, 2012, vol. 63, p. 270-272. (2011: 0.370 - IF, Q4 - JCR, 0.160 - SJR, Q3 - SJR). (2012 - INSPEC, SCOPUS). ISSN 1335-3632. Dostupné na: <https://doi.org/10.2478/v10187-012-0039-1>

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***AEC Vedecké práce v zahraničných recenzovaných vedeckých zborníkoch, monografiách**

- AEC01 HUDEC, Boris - HUŠKOVÁ, Kristína - AARIK, J. - TARRE, A. - KASIKOV, A. - FRÖHLICH, Karol. RuO₂/TiO₂ based MIM capacitors for DRAM application. In ASDAM 2010 : proceedings of the 8th International Conference on Advanced Semiconductor Devices and Microsystems. Eds. J. Breza, D. Donoval and E. Vavrinský. - Piscataway : IEEE, 2010, p. 341-344. ISBN 978-1-4244-8572-7.

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- AEC02 HURAN, Jozef - HOTOVÝ, I. - PETZOLD - BALALYKIN, Nikolay I. - KOBZEV, A.P. RF plasma deposition of thin amorphous silicon carbide films using a combination of silan and methane. In ASDAM 2006 : proceedings of the 6th International Conference on Advanced Semiconductor Devices and Microsystems. - Piscataway : IEEE, 2006, p. 59-62. ISBN 1-4244-0396-0.

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 2. [1.1] FARES, C. - ELHASSANI, R. - PARTAIN, J. - HSU, S.M. - CRACIUN, V. - REN, F. - ESQUIVEL-UPSHAW, J.F. *Annealing and N₂ Plasma Treatment to Minimize Corrosion of SiC-Coated Glass-Ceramics. In MATERIALS. MAY 2020, vol. 13, no. 10., Registrované v: WOS*
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- AEC03 KUZMÍK, Ján - BLAHO, M. - POGANY, D. - GORNIK, E. - ALAM, A. - DIKME, Y. - HEUKEN, M. - JAVORKA, P. - MARSO, M. - KORDOŠ, Peter. Backgating,

high-current and breakdown characterisation of AlGaIn/GaN HEMTs on silicon substrates. In ESSDERC 2003 : 33rd European Solid-State Device Research Conference. - Estoril, 2003, p. 319-321.

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1. [1.1] KOMPA, G. *Small-Signal Transistor Model Complexity. In PARAMETER EXTRACTION AND COMPLEX NONLINEAR TRANSISTOR MODELS. 2020, p. 99-111., Registrované v: WOS*

AEC04

STUHLÍKOVÁ, Ľ. - ŠEBOK, J. - RYBÁR, J. - PETRUS, M. - NEMEC, M. - HARMATHA, L. - BENKOVSKÁ, J. - KOVÁČ, Ján - ŠKRINIAROVÁ, J. - LALINSKÝ, Tibor - PASKIEWICZ, R. - TLACZALA, M. Investigation of deep energy levels in heterostructures based on GaN by DLTS. In ASDAM 2010 : proceedings of the 8th International Conference on Advanced Semiconductor Devices and Microsystems. Eds. J. Breza, D. Donoval and E. Vavrinský. - Piscataway : IEEE, 2010, p. 135-138. ISBN 978-1-4244-8572-7.

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2. [1.1] CARIA, A. - DE SANTI, C. - ZAMPERETTI, F. - HUANG, X. - FU, H. - CHEN, H. - ZHAO, Y. - NEVIANI, A. - MENEGHESSO, G. - ZANONI, E. - MENEGHINI, M. *GaN-based high-periodicity multiple quantum well solar cells: Degradation under optical and electrical stress. In MICROELECTRONICS RELIABILITY. ISSN 0026-2714, NOV 2020, vol. 114, SI., Registrované v: WOS*

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AFC Publikované príspevky na zahraničných vedeckých konferenciách

AFC01

FRÖHLICH, Karol - MIČUŠÍK, Matej - DOBROČKA, Edmund - ŠIFFALOVÍČ, Peter - GUCMANN, Filip - FEDOR, Ján. Properties of Al₂O₃ thin films grown by atomic layer deposition. In ASDAM 2012 : conference proceedings. Eds. Š. Haščík, J. Osvald. - Piscataway : IEEE, 2012, p. 171-174. ISBN 978-1-4673-1195-3. Dostupné na: <https://doi.org/10.1109/ASDAM.2012.6418575>

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2. [1.1] NAUMANN, Franziska - RECK, Johanna - GARGOURI, Hassan - GRUSKA, Bernd - BLUEMICH, Adrian - MAHMOODINEZHAD, Ali - JANOWITZ, Christoph - HENKEL, Karsten - FLEGE, Jan Ingo. *In situ real-time and ex situ spectroscopic analysis of Al₂O₃ films prepared by plasma enhanced atomic layer deposition. In JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B. ISSN 2166-2746, 2020, vol. 38, no. 1, 014014., Registrované*

v: **WOS**

- AFC02 HURAN, Jozef - KOBZEV, A.P. - ŠAFRÁNKOVÁ, Jaroslava - HOTOVÝ, I. Properties of amorphous thin films prepared by plasma enhanced chemical vapour deposition. In Semiconducting and insulating materials : proceedings of the 9th Conference on Semiconducting And Insulating Materials (SIMC'96), Toulouse. Ed. C. Fontaine. - New York : IEEE, 1996, p. 249-252. ISBN 0-7803-3179-6.
Citácie:
1. [1.1] *TULIC, S. - WAITZ, T. - ROMANYUK, O. - VARGA, M. - CAPLOVICOVA, M. - HABLER, G. - VRETENAR, V. - KOTLAR, M. - KROMKA, A. - REZEK, B. - SKAKALOVA, V. Ni-mediated reactions in nanocrystalline diamond on Si substrates: the role of the oxide barrier. In RSC ADVANCES. FEB 25 2020, vol. 10, no. 14, p. 8224-8232., Registrované v: WOS*
- AFC03 KUNZO, Pavol - LOBOTKA, Peter - ŠMATKO, Vasilij - VÁVRA, Ivo. Polyaniline-functionalized polyacarbonate filter as a flow-through gas sensor. In Proceedings of the 17th International Conference on Solid-State Sensors, Actuators and Microsystems : Transducers 2013 & EUROSENSORS XXVII. - IEEE, 2013, p. 270-273. ISBN 978-1-4673-5981-8.
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1. [1.1] *MISHRA, R.K. - MISHRA, P. - VERMA, K. - MONDAL, A. - CHAUDHARY, R.G. - ABOLHASANI, M.M. - LOGANATHAN, S. Electrospinning production of nanofibrous membranes. In ENVIRONMENTAL CHEMISTRY LETTERS. ISSN 1610-3653, JUN 2019, vol. 17, no. 2, p. 767-800., Registrované v: WOS*

AFD Publikované príspevky na domácich vedeckých konferenciách

- AFD01 CHVÁLA, A. - NAGY, L. - MAREK, J. - PRIESOL, J. - DONOVAL, D. - VILHAN, Martin - BLAHO, Michal - GREGUŠOVÁ, Dagmar - KUZMÍK, Ján - ŠATKA, A. Simulation analysis of InAlN/GaN monolithic NAND logic cell. In ASDAM 2018 : The Twelfth International Conference on Advanced Semiconductor Devices and Microsystems. Editors: J. Breza, D. Donoval, E. Vavrinsky. - IEEE, 2018, p. 167-170. ISBN 978-1-5386-7488-8. Dostupné na: <https://doi.org/10.1109/ASDAM.2018.8544508>
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1. [1.1] *GRALOW, M. - WEIGAND, F. - HERZOG, D. - WISCHEROPP, T. - EMMELMANN, C. Biomimetic design and laser additive manufacturing-A perfect symbiosis? In JOURNAL OF LASER APPLICATIONS. ISSN 1042-346X, 2020, vol. 32, no. 2., Registrované v: WOS*
- AFD02 ĎAPAJNA, Milan - VINCZE, A. - NOGA, Pavol - DOBROVODSKÝ, Jozef - ŠAGÁTOVÁ, A. - HASENÖHRL, Stanislav - GREGUŠOVÁ, Dagmar - KUZMÍK, Ján. Determination of secondary-ions yield in SIMS depth profiling of Si, Mg, and C ions implanted GaN epitaxial layers. In ASDAM 2018 : The Twelfth International Conference on Advanced Semiconductor Devices and Microsystems. Editors: J. Breza, D. Donoval, E. Vavrinsky. - IEEE, 2018, p. 141-144. ISBN 978-1-5386-7488-8. (VEGA 2/0012/18)
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- AFD03 ZAŤKO, Bohumír - ŠAGÁTOVÁ, A. - SEDLAČKOVÁ, K. - BOHÁČEK, Pavol -

SEKÁČOVÁ, Mária - KOVÁČOVÁ, Eva - NEČAS, V. Neutron detection using epitaxial 4H-SiC detector structures. In ASDAM 2018 : The Twelfth International Conference on Advanced Semiconductor Devices and Microsystems. Editors: J. Breza, D. Donoval, E. Vavrinsky. - IEEE, 2018, p. 39-42. ISBN 978-1-5386-7488-8. Dostupné na: <https://doi.org/10.1109/ASDAM.2018.8544539> (VEGA 2/0092/18)

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1. [1.1] SLAVICEK, T. - PETERSSON, S. - POSPISIL, S. - THUNGSTROM, G. - SLAVICKOVA, M. SiC based charged particle strip sensor spectrometer with neutron detection capability. In JOURNAL OF INSTRUMENTATION. ISSN 1748-0221, JAN 2020, vol. 15, no. 1., Registrované v: WOS

Príloha D

Údaje o pedagogickej činnosti organizácie

Semestrálne prednášky:

Semestrálne cvičenia:

Semináre:

Terénne cvičenia:

Individuálne prednášky:

doc. Ing. Fedor Gömöry, DrSc.

Názov semestr. predmetu: Supravodiče pre elektrotechniku

Počet hodín za semester: 4

Názov katedry a vysokej školy: Fakulta elektrotechniky a informatiky STU, Ústav elektrotechniky

Ing. Ján Šoltýs, PhD

Názov semestr. predmetu: Metódy diagnostiky materiálov

Počet hodín za semester: 6

Názov katedry a vysokej školy: Fakulta matematiky, fyziky a informatiky UK, Katedra experimentálnej fyziky

Príloha E**Medzinárodná mobilita organizácie****(A) Vyslanie vedeckých pracovníkov do zahraničia na základe dohôd:**

Krajina	D r u h d o h o d y					
	MAD, KD, VTS		Medziústavná		Ostatné	
	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní
Česko					Edmund Dobročka	1
					Martin Hulman	1
					Martin Hulman	1
					Tibor Izsák	5
					Tibor Izsák	5
					Lenka Pribusová Slušná	1
					Lenka Pribusová Slušná	2
					Lenka Pribusová Slušná	2
					Viera Skákalová	2
					Viera Skákalová	5
					Ján Šoltýs	1
					Gabriel Vanko	5
					Gabriel Vanko	5
					Marian Varga	9
					Marian Varga	10
					Tatiana Vojteková	1
					Tatiana Vojteková	2
					Tatiana Vojteková	2
Francúzsko					Anang Dadhich	3
					Enric Pardo	3
Chorvátsko					Michal Mruczkiewicz	3

Nemecko					Karol Fröhlich	12
					Boris Hudec	5
					Boris Hudec	2
					Marián Precner	2
					Jaroslav Tóbik	2
					Gabriel Vanko	3
Poľsko					Michał Mruczkiewicz	45
Rakúsko					Tibor Izsák	5
					Viera Skákalová	1
					Viera Skákalová	1
					Gabriel Vanko	5
Taliansko					Martin Hulman	5
					Viera Skákalová	5
USA					Ján Fedor	30
					Marián Precner	28
					Marián Precner	30
Počet vyslaní spolu					37	250

(B) Prijatie vedeckých pracovníkov zo zahraničia na základe dohôd:

Krajina	D r u h d o h o d y					
	MAD, KD, VTS		Medziústavná		Ostatné	
	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní
Česko					Kočí M.	4
					Kromka A.	4
					Szabó O.	4
Počet prijatí spolu					3	12

(C) Účast' pracovníkov pracoviska na konferenciách v zahraničí (nezahrnutých v "A"):

Krajina	Názov konferencie	Meno pracovníka	Počet dní
Belgicko (online)	iWoRiD	Bohumír Zatl'ko	5
Česko	NANOCON 2021	Marian Varga	4
Francúzsko (online)	eMRS 2021	Štefan Chromik	4
	Numerical Modelling HTS	Asef Ghabeli Juybari	2
		Enric Pardo	2

		Mykola Soloviov	2
Japonsko (online)	IMFED 2021	Dagmar Gregušová	2
	MT 2021	Anang Dadhich	5
		Fedor Gömöry	5
		Enric Pardo	5
	SSDM 2021	Milan Ľapajna	4
Poľsko (online)	SSQI 2021	Michał Mruczkiewicz	3
Rusko (online)	EUCAS	Anang Dadhich	5
		Asef Ghabeli Juybari	5
		Fedor Gömöry	5
		Ján Kováč	5
		Pavol Kováč	5
		Marek Mošať	5
		Enric Pardo	5
		Eugen Seiler	5
		Mykola Soloviov	5
Španielsko (online)	Sol-Sky Mag 2021	Iuliia Vetrova	4
Taliansko (online)	SSIE 2021	Fridrich Egyenes	5
USA (online)	ALD 2021	Karol Fröhlich	4
		Boris Hudec	4
		Gabriel Vanko	4
	CEC/ICMC 2021	Pavol Kováč	5
	ECS 2021	Boris Hudec	4
	MRS	Enric Pardo	7
Spolu	15	29	125

Vysvetlivky: MAD - medziakademické dohody, KD - kultúrne dohody, VTS - vedecko-technická spolupráca v rámci vládnych dohôd

Skratky použité v tabuľke C:

ALD 2021 - 21st International Conference on Atomic Layer Deposition
CEC/ICMC 2021 - 23rd Cryogenic Engineering Conference and International Cryogenic Materials Conference
ECS 2021 - 240th ECS Meeting
eMRS 2021 - 2021 Spring Meeting of the European Materials Research Society -E-MRS
EUCAS - 15th European Conference on Applied Superconductivity
IMFED 2021 - International Meeting for Future of Electron Devices
iWoRiD - 22nd International Workshop on Radiation Imaging Detectors
MRS - 2021 Virtual MRS Spring Meeting
MT 2021 - 27th International Conference on Magnet Technology
NANOCON 2021 - 13th International Conference on Nanomaterials - Research & Application
Numerical Modelling HTS - 7th International Workshop on Numerical Modelling of HTS
Sol-Sky Mag 2021 - Solitons and Skyrmion Magnetism International Conference
SSDM 2021 - 2021 International Conference on Solid State Devices and Materials
SSIE 2021 - Summer School of Information Engineering 2021
SSQI 2021 - Symposium on Spintronics and Quantum Information

Príloha F**Vedecko-popularizačná činnosť pracovníkov organizácie SAV**

Meno	Spoluautori	Typ¹	Názov	Miesto zverejnenia	Dátum alebo počet za rok
Ing. Filip Gučmann, PhD.		IN	Propagačná kampaň promovajúca aktuálne témy PhD štúdia na EIÚ SAV	www.facebook.com/elusav	1.5.2021
Ing. Filip Gučmann, PhD.	O. Pohorelec	IN	Komentovaná prezentácia k Týždňu otvorených dverí SAV	www.sav.sk, www.facebook.com/elusav	1.4.2021
Ing. Milan Ťapajna, PhD.		IN	Bez 5G by bol prenos dát v blízkej budúcnosti energeticky neudržateľný	Podcast CVTI (youtube)	5.5.2021
Mgr. Bohumír Zatlík, PhD		TL	Nový precízny detector žiarenia s nízkymi nákladmi	Prešporský podnikateľ 9/2021 str. 5	1.9.2021

¹ PB - prednáška/beseda, TL - tlač, TV - televízia, RO - rozhlas, IN - internet, EX - exkurzia, PU - publikácia, MM - multimédiá, DO - dokumentárny film