

**Elektrotechnický ústav SAV**



**Správa o činnosti organizácie SAV  
za rok 2020**

Bratislava  
január 2021

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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.

**Člen Snemu SAV:** doc. Ing. Fedor Gömöry, DrSc.

**Adresa:** Dúbravská cesta 9, 841 04 Bratislava

<http://www.elu.sav.sk>

**Tel.:** 02/ 5922 2555

**E-mail:** [elu.sav@savba.sk](mailto:elu.sav@savba.sk)

**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	113	83	30	22	5	109	78.59	60.44	10

<b>Vedeckí pracovníci</b>	56	48	8	6	1	52	40.48	39.48	0
<b>Odborní pracovníci VŠ</b> (výskumní a vývojoví zamestnanci <sup>1</sup> )	27	20	7	14	4	27	12.26	12.26	0.3
<b>Odborní pracovníci VŠ</b> (ostatní zamestnanci <sup>2</sup> )	5	2	3	0	0	5	4.4	0.5	1
<b>Odborní pracovníci ÚS</b>	18	10	8	2	0	18	15.85	8.2	8.7
<b>Ostatní pracovníci</b>	7	3	4	0	0	7	5.6	0	0

<sup>1</sup> odmeňovaní podľa 553/2003 Z.z., príloha č. 5<sup>2</sup> odmeňovaní podľa 553/2003 Z.z., príloha č. 3 a č. 4

*K – kmeňový stav zamestnancov v pracovnom pomere k 31.12.2020 (uvádzať zamestnancov v pracovnom pomere, vrátane riadnej materskej dovolenky, zamestnancov pôsobiach v zahraničí, v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiach v zastupiteľských zboroch)*

*F – fyzický stav zamestnancov k 31.12.2020 (bez riadnej materskej dovolenky, zamestnancov pôsobiach v zahraničí v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiach v zastupiteľských zboroch)*

*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, správe a údržbe budov, upratovačiek, vodičov a pod.*

*M, Ž – muži, ženy*

Tabuľka 1b Štruktúra vedeckých pracovníkov (kmeňový stav k 31.12.2020)

<b>Rodová skladba</b>	<b>Pracovníci s hodnosťou</b>				<b>Vedeckí pracovníci v stupňoch</b>		
	<b>DrSc.</b>	<b>CSc./PhD.</b>	<b>prof.</b>	<b>doc.</b>	<b>I.</b>	<b>II.a.</b>	<b>II.b.</b>
<b>Muži</b>	9	37	0	4	10	28	10
<b>Ženy</b>	2	6	0	1	2	4	2

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

<b>Veková štruktúra (roky)</b>	<b>&lt; 31</b>		<b>31-35</b>		<b>36-40</b>		<b>41-45</b>		<b>46-50</b>		<b>51-55</b>		<b>56-60</b>		<b>61-65</b>		<b>&gt; 65</b>	
	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>
<b>Muži</b>	16	7.3	7	5.6	10	10.0	6	5.7	3	2.8	2	2.0	3	3.0	11	10.1	14	7.8
<b>Ženy</b>	5	1.4	0	0.0	2	2.0	0	0.0	0	0.0	2	2.0	1	1.0	5	4.6	1	0.6

*A - Prepočet bez zohľadnenia úväzkov zamestnancov*

*B - Prepočet so zohľadnením úväzkov zamestnancov*

Tabuľka 1d Priemerný vek zamestnancov organizácie k 31.12.2020

	<b>Kmeňoví zamestnanci</b>	<b>Vedeckí pracovníci</b>	<b>Riešitelia projektov</b>
<b>Muži</b>	48.6	52.1	47.3
<b>Ženy</b>	53.1	50.8	47.2
<b>Spolu</b>	49.8	51.9	47.3

### 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 2020

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		
<b>1. Projekty VEGA</b>	15	2	-	-	148987	128206	-	13216
<b>2. Projekty APVV</b>	9	6	-	-	534736	389186	-	88486
<b>3. Projekty OP ŠF</b>	0	1	-	-	-	-	18920	18920
<b>4. Projekty SASPRO</b>	0	0	-	-	-	-	-	-
<b>5. Iné projekty (FM EHP, ŠPVV, Vedecko-technické projekty, ESF, na objednávku rezortov a pod.)</b>	1	0	10231	10231	-	-	-	-

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

Tabuľka 2b Domáce projekty podané v roku 2020

Štruktúra projektov	Miesto podania	Organizácia je nositeľom projektu	Organizácia sa zmluvne podieľa na riešení projektu
<b>1. Účasť na nových výzvach APVV r. 2020</b>	-	3	1
<b>2. Projekty výziev OP ŠF podané r. 2020</b>	Bratislava		
	Regióny		

## 2.2. Medzinárodné projekty

### 2.2.1. Medzinárodné projekty riešené v roku 2020

Tabuľka 2c Medzinárodné projekty riešené v roku 2020

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		
<b>1. Projekty 7. RP EÚ a Horizont 2020</b>	0	5	-	-	-	-	14276	186351
<b>2. Projekty ERA.NET, ESA, JRP</b>	0	3	-	-	-	-	37500	-
<b>3. Projekty COST</b>	0	1	-	-	-	-	20000	-
<b>4. Projekty EUREKA, NATO, UNESCO, CERN, IAEA, IVF, ERDF a iné</b>	0	0	-	-	-	-	-	-
<b>5. Projekty v rámci medzivládnych dohôd</b>	1	0	-	-	-	-	-	-
<b>6. Bilaterálne projekty MAD</b>	0	0	-	-	-	-	-	-
<b>7. Bilaterálne projekty ostatné</b>	2	0	4167	4167	-	-	-	-
<b>8. Podpora MVTs z národných zdrojov okrem SAV (APVV a iné)</b>	0	0	-	-	-	-	-	-
<b>9. Iné projekty</b>	0	0	-	-	-	-	-	-

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

## 2.2.2. Medzinárodné projekty Horizont 2020 podané v roku 2020

Tabuľka 2d Počet projektov Horizont 2020 v roku 2020

	A	B
<b>Počet podaných projektov Horizont 2020</b>		5

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 štrukturálnych fondov EÚ v ďalších výzvach

**2.3. Najvýznamnejšie výsledky vedeckej práce** (maximálne 1000 znakov + 1 obrázok; bibliografický údaj uvádzajte rovnako ako v zozname publikačnej činnosti, vrátane IF)

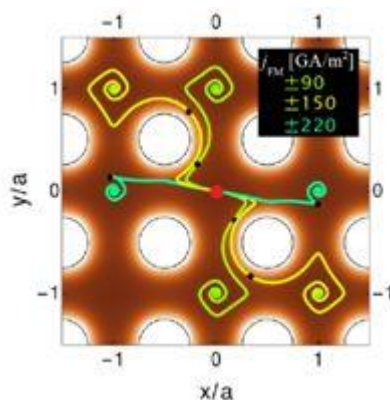
### 2.3.1. Základný výskum

Názov: **Kontrolovaný transport skyrmiónov v magnetických antidot mriežkach**

Riešitelia: J. Feilhauer, J. Tóbiš, M. Mrućkiewicz

Projekt, v rámci ktorého sa dosiahli výsledky: ERDF ITMS 313021T081, APVV-16-0068, 19-0311, Era.Net RUS Plus (TSMFA), VEGA 2/0162/18, 2/0150/18, UF, NSC, Poland UMO-2017/27/N/ST3/00419, No. UMO2018/30/Q/ST3/00416 and Nat. Scholarship Programme SR

Magnetické skyrmióny sú, vďaka relatívne nízkej energetickej náročnosti na ich manipuláciu, nádejnými kandidátmi na informačné nosiče v efektívnych počítačových pamätiach a logických hradlách budúcnosti. Spintronicke zariadenia založené na skyrmiónoch však budú vyžadovať presnú kontrolu transportu skyrmiónov. V našej práci [1] ukazujeme, že tento cieľ je možné dosiahnuť použitím magnetickej antidot mriežky, t.j. štvorcovej mriežky kruhových otvorov vytvorenej vo feromagnetickú vrstvu. Pohyb skyrmiónov v antidot mriežkach skúmame využitím mikromagnetických simulácií a semi-analytických výpočtov na základe Thieleho rovnice, kde sú skyrmióny poháňané aplikovaním elektrického prúdu. Ukazujeme, že skyrmióny v antidot mriežke môžu byť manipulované rôznymi smermi v závislosti od parametrov aplikovaného prúdového impulzu. Napriek tomu, že smer elektrického prúdu je fixovaný, je možné vďaka netriviálnej súhre medzi odpudivým potenciálom antidot mriežky, skyrmionovým Hallovým javom a nerovnomerným rozdelením prúdu dosiahnuť úplnú kontrolu pohybu skyrmionu v antidot mriežke. Ďalej demonštrujeme, že smer pohybu skyrmiónov je možné ovládať zmenou iba jedného parametra prúdového impulzu, konkrétne jeho veľkosti.



Obr. Trajektórie skyrmiónov v antidot mriežke pre rôzne veľkosti aplikovaného prúdového pulzu

Výstupy:

FEILHAUER, Juraj\*\* - SAHA, S. - TÓBIK, Jaroslav - ZEHETMAYER, M. - HEYDERMAN, L.J. - MRUCZKIEWICZ, Michal. Controlled motion of skyrmions in a magnetic antidot lattice. In Physical Review B, 2020, vol. 102, no. 184425. (2019: 3.575 - IF, Q2 - JCR, 1.811 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents, WOS, SCOPUS). ISSN 1550-235X.

### 2.3.2. Aplikačný typ

Názov: **Vyhodnotenie vhodnosti vysokoteplotných supravodivých vodičov 2. generácie z hľadiska možnosti ich použitia pri návrhu a zhotovení supravodivého magnetu pre urýchľovač Nuclotron**

Riešitelia: F. Gömöry, T. Kujovič, M. Mošat', E. Seiler, M. Soloviov, J. Šouc

Používateľ: GSI Darmstadt, Nemecko

Finančný prínos: 50 000,- €

Na požiadanie GSI Darmstadt (Nemecko) sme spracovali štúdiu „Performance of High Temperature Superconducting Tapes“, v ktorej by sme zhodnotili potenciál supravodivých pásov z hľadiska zhotovenia káblovaného vodiča typu CORC/CORT, z ktorého by sa navinul dipólový magnet pre generovanie pulzných magnetických polí v urýchľovači Nuclotron. Údaje z literatúry, ako i výsledky našich predošlých výskumov sme doplnili experimentami na vzorkách najnovších vodičov. Ukázali sme, že okrem kritickej prúdovej hustoty sú rozhodujúce ďalšie charakteristiky, predovšetkým rozmery pásky a kritický priemer ohybu.

### 2.3.3. Medzinárodné vedecké projekty

Názov: Pokročilý experimentálny model supravodivého motora

Riešitelia: E. Pardo,

Projekt, v rámci ktorého sa dosiahli výsledky: Horizon 2020 project ASuMED, contract no. 723119

Predpokladaný globálny nárast využívania leteckej dopravy po skončení krízy spôsobenej Covid-19 vedie nevyhnutne k opätovnému zvýšeniu emisií v celom svete. Preto sa Európska únia v ACARE Flightpath 2050 usiluje o zníženie emisií CO<sub>2</sub> o 75 %, emisií NO<sub>x</sub> a tuhých častíc o 90 %, a hluku o 65 %. Distribuovaný elektrický pohon u lietadiel má ambíciu dosiahnuť tieto ciele vďaka vyššej efektívnosti na jednej strane, a čo je podstatnejšie, dramatickému zlepšeniu celkovej aerodynamiky lietadiel na strane druhej. Batérie, ako aj spaľovací turbogenerátor sú schopné dodávať elektrickú energiu. Cieľom Horizon 2020 projektu ASuMED je konštrukcia 1MW plne supravodivého experimentálneho motora testovaného v laboratórnych podmienkach. Konzorcium obsahuje partnerov z akademickej oblasti, ako aj priemyselných partnerov, okrem iných napríklad Oswald Elektromotoren GmbH (koordinátor), Rolls-Royce PLC, Univerzita v Cambridge a Karlsruhe Institute of Technology. Spomínaný supravodivý motor využíva stack-y (súbor paralelných pásov) z vysokoteplotných REBCO supravodičov v rotore, ako silné permanentné magnety a efektívne vinutia statora z REBCO supravodičov. Za náš pravdepodobne najdôležitejší výsledok v roku 2020 považujeme numerické modelovanie priečnej demagnetizácie v supravodivých vysokoteplotných REBCO stack-och rotora s relevantným počtom pásov (100), a to až pre 2 milióny cyklov. Takýto vysoký počet je nevyhnutný, nakoľko pri predpokladanej pracovnej frekvencii 1000Hz striedavé pole dosiahne 2 milióny cyklov za iba 33 minút letu. Taktiež sme vyvinuli stratégiu zníženia striedavých strát v statore pod 0,04% z celkového výkonu. Okrem toho bol vybudovaný merací systém pre experimentálne meranie AC strát v jednej cievke statora v tuhom dusíkovom ľade pri teplote 25K s použitím cryo-coolera.

Horizon 2020 financovanie projektu pre EIU SAV: 286 210 EUR (4 776 226,25 EUR celý projekt).

Výstupy:

Články:

DADHICH, Anang - PARDO, Enric\*\* - KAPOLKA, Milan. Time constant of the transverse-field demagnetization of superconducting stacks of tapes. In Superconductor Science and Technology, 2020, vol. 33, no. 6, no. 065003. (2019: 3.067 - IF, Q2 - JCR, 0.991 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0953-2048.

DADHICH, Anang - PARDO, Enric\*\*. Modeling cross-field demagnetization of superconducting stacks and bulks for up to 100 tapes and 2 million cycles. In Scientific Reports, 2020, vol. 10, no. 19265. (2019: 3.998 - IF, Q1 - JCR, 1.341 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents, WOS, SCOPUS). ISSN 2045-2322.

KAPOLKA, Milan - PARDO, Enric\*\* - GRILLI, F. - BASKYS, A. - CLIMENTE-ALARCON, V. - DADHICH, Anang - GLOWACKI, B.A. Cross-field demagnetization of stacks of tapes: 3D modeling and measurements. In Superconductor Science and Technology, 2020, vol. 33, no. 4, no. 044019. (2019: 3.067 - IF, Q2 - JCR, 0.991 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0953-2048.

LI, S. - KOVÁČ, Ján - PARDO, Enric\*\*. Coupling loss at the end connections of REBCO stacks: 2D modelling and measurement. In Superconductor Science and Technology, 2020, vol. 33, no. 075014. (2019: 3.067 - IF, Q2 - JCR, 0.991 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0953-2048.

BENKEL, T. - LAO, M. - LIU, Y. - PARDO, Enric - WOLFTÄDLER, S. - REIS, T. - GRILLI, F.\*\*. T-A-formulation to model electrical machines with HTS coated conductor coils. In IEEE Transactions on Applied Superconductivity, 2020, vol. 30, no. 5205807. (2019: 1.692 - IF, Q3 - JCR, 0.419 - SJR, Q2 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1051-8223.

Vyžiadané prednášky:

**Pardo, E., Kováč, J., Kopera, L., Ries, R., Grilli, F., Berberich, E., and Reis, T.:** AC loss in the REBCO stator of a 1 MW motor for aviation. In: 33<sup>th</sup> International Symposium on Superconductivity - ISS. Tsukuba 2020.

**Pardo, E., Dadhich, A., Li, S., Kapolka, M., Solovyov, M., Mošat', M., Kováč, J., and Šouc, J.:** Modeling and measuring the cross field demagnetization of REBCO stacks and bulks for millions of cycles. In Applied Superconductivity Conference 2020 Virtual Conference.

Grilli, F., Benkel, T., Hänisch, J., Reis, T., Berberich, E., Wolfstädter, S., Schneider, C., Miller, P., Palmer, C., Glowacki, B., Climente-Alarcon, V., Smara, A., Tomkow, L., Teigelkötter, J., Stock, A., Büdel, J., Jeunesse, L., Staempflin, M., Delautre, G., Zimmermann, B., van der Woude, R., Perez, A., Samoilenkoy, S., Molodyk, A., **Pardo, E., Kapolka, M., Li, S., and Dadhich, A.:** REBCO coated conductors are ready to take off. In SuperFOx 2020. Santa Margherita Ligure.

Ceny a ocenenia:

**Anang Dadhich** - finalista súťaže PhD študentov, ASC 2020, Virtual Conf. Oct 24-Nov 7 2020.

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

Tabuľka 2e Štatistika vybraných kategórií publikácií

<b>PUBLIKAČNÁ A EDIČNÁ ČINNOSŤ</b>	<b>Počet v r. 2020/ doplňky z r. 2019</b>
<b>1. Vedecké monografie a monografické štúdie vydané v domácich vydavateľstvách (AAB, ABB)</b>	<b>0 / 0</b>
<b>2. Vedecké monografie a monografické štúdie vydané v zahraničných vydavateľstvách (AAA, ABA)</b>	<b>0 / 0</b>
<b>3. Odborné monografie, vysokoškolské učebnice a učebné texty vydané v domácich vydavateľstvách (BAB, ACB, CAB)</b>	<b>0 / 0</b>
<b>4. Odborné monografie a vysokoškolské učebnice a učebné texty vydané v zahraničných vydavateľstvách (BAA, ACA, CAA)</b>	<b>0 / 0</b>
<b>5. Kapitoly vo vedeckých monografiách vydaných v domácich vydavateľstvách (ABD)</b>	<b>0 / 0</b>
<b>6. Kapitoly vo vedeckých monografiách vydaných v zahraničných vydavateľstvách (ABC)</b>	<b>1 / 0</b>
<b>7. Kapitoly v odborných monografiách, vysokoškolských učebniciach a učebných textoch vydaných v domácich vydavateľstvách (BBB, ACD)</b>	<b>0 / 0</b>
<b>8. Kapitoly v odborných monografiách, vysokoškolských učebniciach a učebných textoch vydaných v zahraničných vydavateľstvách (BBA, ACC)</b>	<b>0 / 0</b>
<b>9. Vedecké práce registrované v Current Contents Connect (ADCA, ADCB, ADDA, ADDB)</b>	<b>51 / 2</b>
<b>10. Vedecké práce registrované vo Web of Science Core Collection alebo Scopus (ADMA, ADMB, ADNA, ADN B)</b>	<b>7 / 0</b>
<b>11. Vedecké práce v ostatných domácich časopisoch (ADFA, ADFB)</b>	<b>0 / 0</b>
<b>12. Vedecké práce v ostatných zahraničných časopisoch (ADEA, ADEB)</b>	<b>0 / 0</b>
<b>13. Vedecké práce v domácich recenzovaných zborníkoch (AEDA)</b>	<b>0 / 0</b>
<b>14. Vedecké práce v zahraničných recenzovaných zborníkoch (AECA)</b>	<b>0 / 0</b>
<b>15. Publikované príspevky na domácich vedeckých konferenciách (AFB, AFD)</b>	<b>12 / 0</b>
<b>16. Publikované príspevky na zahraničných vedeckých konferenciách (AFA, AFC)</b>	<b>2 / 0</b>
<b>17. Vydané periodiká evidované v CCC, WoS Core Collection, SCOPUS</b>	<b>1</b>
<b>18. Ostatné vydané periodiká</b>	<b>0</b>
<b>19. Zostavovateľské práce knižného charakteru (FAI)</b>	<b>1 / 0</b>
<b>20. Preklady vedeckých a odborných textov (EAJ)</b>	<b>0 / 0</b>
<b>21. Heslá v odborných terminologických slovníkoch a encyklopédiách (BDA, BDB)</b>	<b>0 / 0</b>
<b>22. Recenzie v časopisoch a zborníkoch (EDI)</b>	<b>0 / 0</b>

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

Tabuľka 2f Štatistika vedeckých prác podľa kvartilu vedeckého časopisu

<b>Kvartil vedeckého časopisu</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Spolu</b>
<b>Podľa IF z r. 2019 (zdroj JCR)</b> <i>Počet článkov / doplnky</i>	21 / 1	22 / 0	6 / 0	3 / 1	52 / 2
<b>Podľa SJR z r. 2019 (zdroj Scimago)</b> <i>Počet článkov / doplnky</i>	40 / 1	9 / 0	8 / 1	1 / 0	58 / 2

Tabuľka 2g Ohlasy

<b>OHLASY</b>	<b>Počet v r. 2019/ doplnky z r. 2018</b>
<b>Citácie vo WOS (1.1, 2.1)</b>	1350 / 24
<b>Citácie v SCOPUS (1.2, 2.2)</b>	73 / 14
<b>Citácie v iných citačných indexoch a databázach (9, 10, 3.2, 4.2)</b>	1 / 0
<b>Citácie v publikáciách neregistrovaných v citačných indexoch (3, 4, 3.1, 4.1)</b>	10 / 1
<b>Recenzie na práce autorov z organizácie (5, 6, 7, 8)</b>	0 / 0

## 2.5. Aktívna účasť na vedeckých podujatiach

Tabuľka 2h Vedecké podujatia

<b>Prednášky a vývesky na medzinárodných vedeckých podujatiach</b>	16
<b>Prednášky a vývesky na národných vedeckých podujatiach</b>	11

## 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. **Fröhlich, K.**, Mikolášek, M., Sahoo, P.P., Hušková, K., Ondrejka, P., Řeháček, V., and Harmatha, L.: Preparation and performance of photoanode with thin RuO<sub>2</sub>- and IrO<sub>2</sub>-RuO<sub>2</sub>-based oxide electrocatalysts for water splitting. In Inter. Conf. Functional Materials and Nanotechnologies FM&NT-2020. Vilnius 2020. On-line.
2. **Gömöry, F.**: Use of electromagnetic potentials for the modeling of critical states in superconductors. In Applied Superconductivity Conference 2020 Virtual Conference.
3. **Gömöry, F.** and Šouc, J.: Effect of inhomogeneities on critical currents and stability of coated conductors. In: 33<sup>th</sup> International Symposium on Superconductivity - ISS. Tsukuba 2020.
4. **Pardo, E.**, Kováč, J., Kopera, L., Ries, R., Grilli, F., Berberich, E., and Reis, T.: AC loss in the REBCO stator of a 1 MW motor for aviation. In: 33<sup>th</sup> International Symposium on Superconductivity - ISS. Tsukuba 2020.
5. **Pardo, E.**, Dadhich, A., Li, S., Kopolka, M., Solovyov, M., Mošat', M., Kováč, J., and Šouc, J.: Modeling and measuring the cross field demagnetization of REBCO stacks and bulks for millions of cycles. In ASC 2020 Virtual Conference.
6. Ainslie, M., Grilli, F., Queval, L., **Pardo, E.**, Perez Mendez, F., Mataire, R., Morandi, A., Ghabeli, A., Bumby, C., and Brambilla, R.: A new benchmark numerical model: the high-T<sub>c</sub> superconducting dynamo. In ASC 2020 Virtual Conference.
7. Grilli, F., Benkel, T., Hänisch, J., Reis, T., Berberich, E., Wolfstädter, S., Schneider, C., Miller, P., Palmer, C., Glowacki, B., Climente-Alarcon, V., Smara, A., Tomkow, L., Teigelkötter, J., Stock, A., Büdel, J., Jeunesse, L., Staempfli, M., Delautre, G.,

Zimmermann, B., van der Woude, R., Perez, A., Samoilenov, S., Molodyk, A., **Pardo**, E., Kapolka, M., Li, S., and Dadhich, A.: REBCO coated conductors are ready to take off. In SuperFOx 2020. Santa Margherita Ligure.

## **2.6.2. Vyžiadané prednášky na národných vedeckých podujatiach**

1. **Chromik**, Š., Sojková, M., Španková, M., Hulman, M., Rosová, A., Dobročka, E., Gregor, M., Vanko, G., and Pécz, B.: The preparation and properties of MoS<sub>2</sub> two dimensional system prepared by different methods. In 11<sup>th</sup> Inter. Conf. Solid State Surfaces Interfaces Conf. - SSSI 2020. Smolenice 2020.

## **2.6.3. Vyžiadané prednášky na významných vedeckých inštitúciách**

1. **Gömöry**, F.: Appearance of hot spots in coated conductors. National Institute for Nuclear Physics Genoa 2020.

## **2.7. Patentová a licenčná činnosť na Slovensku a v zahraničí v roku 2020**

### **2.7.1. Vynálezy, na ktoré bol v roku 2020 udelený patent**

#### **a) na Slovensku**

Názov vynálezu: Spôsob prípravy manganitových La-Sr-Mn-O vrstiev s vysokou onsetovou teplotou prechodu do feromagnetického stavu

Číslo patentu: 288749

Dátum priority: 2016

Majiteľ / spolumajiteľ: Elektrotechnický ústav SAV

Pôvodcovia vynálezu: Chromik Štefan, Štrbík Vladimír, Španková Marianna

#### **b) v zahraničí**

### **2.7.2. Vynálezy prihlásené v roku 2020**

#### **a) na Slovensku**

Názov vynálezu: Spôsob prípravy kanálov s potlačenou supravodivosťou v YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> mikropáske s využitím skenovania elektrónovým lúčom

Číslo prihlášky: PP 50006-2020

Dátum priority: 7.2.2020

Majiteľ / spolumajiteľ: Elektrotechnický ústav SAV/B.G. Negev Technologies and Applications Ltd.

Pôvodcovia vynálezu: Chromik Štefan, Talacko Marcel, Španková Marianna, G. Jung

#### **b) v iných krajinách ako prioritná prihláška**

#### **c) PCT**

Názov vynálezu: Atomic Layer Process Printer

Krajina:

Číslo prihlášky: PCT/EP2020/065396

Dátum priority: 2020

Majiteľ / spolumajiteľ: Elektrotechnický ústav SAV, Danmarks Tekniske Universitet;  
Friedrich-Alexander Universität Erlangen-Nürnberg

Pôvodcovia vynálezu: M. Plakonyuk, O. Hansen, Kundrata Ivan, Fröhlich Karol, A. Boisen, T. Rindzievicius, J. Bachmann

#### d) EP

Názov vynálezu: Vertical GaN transistor with insulating channel and the method of forming the same

Krajina: Európska únia

Číslo prihlášky: EP3714489

Dátum priority: 30.9.2020

Majiteľ / spolumajiteľ: Elektrotechnický ústav SAV

Pôvodcovia vynálezu: Kuzmík Ján

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 2020

b) udelené v roku 2020

#### 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 2020 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	L'Oreal UNESCO Ženy vo vede	9
Hulman Martin	VEGA	2
Chromík Štefan	VEGA	1
Rosová Alica	VEGA	1
Sojková Michaela	VEGA	1
Španková Marianna	VEGA	1
Vanko Gabriel	VEGA	1
Zat'ko Bohumír	APVV	1
	VEGA	1

**2.9. Účasť na spracovaní hesiel do encyklopédie Beliana**

Počet autorov hesiel: 0

**2.10. Recenzovanie publikácií a príspevkov vo vedeckých časopisoch**

Tabuľka 2j Počet recenzovaných monografií, článkov, zborníkov

Meno pracovníka	Knížné monografie		Príspevky v časopisoch			Zborníky	
	Domáce	Zahra- ničné	WoS, SCOPUS	Iné databázy	Ostatné	Domáce	Zahra- ničné
Gömöry Fedor	0	1	10	0	0	0	0
Gregušová Dagmar	0	0	14	0	0	0	0
Gucmann Filip	0	0	1	0	0	0	0
Hulman Martin	0	0	3	0	0	0	0
Chromik Štefan	0	0	3	0	0	0	0
Kováč Pavol	0	0	27	0	0	0	0
Kuzmík Ján	0	0	23	0	0	0	0
Osvald Jozef	0	0	10	0	0	0	0
Pardo Enric	0	0	18	0	0	0	0
Rosová Alica	0	0	7	0	0	0	0
Sojková Michaela	0	0	9	0	0	0	0
Soloviov Mykola	0	0	12	0	0	0	0
Ťapajna Milan	0	0	16	0	0	0	0
Vanko Gabriel	0	0	6	0	0	0	0
Varga Marian	0	0	3	0	0	0	0
Zaťko Bohumír	0	0	4	0	0	0	0
<b>Spolu</b>	<b>0</b>	<b>1</b>	<b>166</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**2.11. Iné informácie k vedeckej činnosti.**

### 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 2020

Forma	Počet k 31.12.2020				Počet doktorandov po doktorandskej skúške		Počet ukončených doktorantúr v r. 2020					
							Ukončenie z dôvodov					
	celkový počet		z toho novoprijatí						ukončenie úspešnou obhajobou		predčasné ukončenie	
	M	Ž	M	Ž	M	Ž	M	Ž	M	Ž	M	Ž
Denná zo zdrojov SAV	11	4	1	2	8	2	0	0	0	0	0	0
Denná z iných zdrojov	3	0	0	0	3	0	0	0	0	0	0	0
Externá	1	2	0	0	1	2	0	0	0	0	0	0
Spolu	15	6	1	2	12	4	0	0	0	0	0	0
Súhrn	21		3		16		0		0		0	

Uvádzajte len doktorandov organizácie ako externej vzdelávacej inštitúcie.

Riadok „Spolu“ je súčtom troch riadkov nad ním. Každá bunka v „Súhrn“ je súčtom dvoch buniek nad ňou. V stĺpci „Počet doktorandov po doktorandskej skúške“ sa uvádza počet doktorandov, ktorí počas roku 2020 boli aspoň 1 deň doktorandami po doktorandskej skúške. Sú číselne zahrnutí aj v predchádzajúcich stĺpcoch.

#### 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	3	3	0	0	0	0

#### 3.3. Zoznam doktorandov, ktorí ukončili doktorandské štúdium úspešnou obhajobou

Tabuľka 3c Menný zoznam ukončených doktorandov v roku 2020 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
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### 3.4. Zoznam doktorandov, ktorí ukončili doktorandské štúdium úspešnou obhajobou v nadštandardnej dĺžke štúdia

Tabuľka 3d Menný zoznam ukončených doktorandov v roku 2020 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
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### 3.5. Uplatnenie absolventov doktorandského štúdia

Tabuľka 3e Prehľad uplatnenia absolventov doktorandského štúdia

Počet absolventov PhD. štúdia v roku 2020 (obhajoba leto 2020)	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
0	0	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	RUS/3, IND/1, IRN/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	Doktorandské štúdium uskutočňované na (univerzita/vysoká škola a fakulta)
fyzika	4.1.1	Fakulta matematiky, fyziky a informatiky UK
fyzika kondenzovaných látok a akustika	4.1.3	Fakulta matematiky, fyziky a informatiky UK
elektronika	5.2.13	Fakulta elektrotechniky a informatiky STU
fyzikálne inžinierstvo	5.2.48	Fakulta elektrotechniky a informatiky STU
elektrotechnika	5.2.9	Fakulta elektrotechniky a informatiky STU

Tabuľka 3h Účast' na pedagogickom procese

<b>Menný prehľad pracovníkov, ktorí boli menovaní do odborových komisií pre doktorandské štúdium</b>	<b>Menný prehľad pracovníkov, ktorí pôsobili ako členovia vedeckých rád univerzít, správnych rád univerzít a fakúlt</b>	<b>Menný prehľad pracovníkov, ktorí získali vyššiu vedeckú, pedagogickú hodnotu alebo vyšší kvalifikačný stupeň</b>
RNDr. Vladimír Cambel, DrSc. (elektronika)	doc. Ing. Fedor Gömöry, DrSc. (Elektrotechnická fakulta ŽU)	Ing. Filip Gucmann, PhD. (IIa)
doc. RNDr. Edmund Dobročka, CSc. (fyzikálne inžinierstvo)	doc. Ing. Fedor Gömöry, DrSc. (Fakulta matematiky, fyziky a informatiky UK)	Ing. Tibor Izsák, PhD. (IIa)
Ing. Karol Fröhlich, DrSc. (teoretická elektrotechnika)	doc. Ing. Jozef Novák, DrSc. (Fakulta elektrotechniky a informatiky STU)	
Ing. Karol Fröhlich, DrSc. (elektrotechnológia a materiály)		
Ing. Karol Fröhlich, DrSc. (elektronika)		
doc. Ing. Fedor Gömöry, DrSc. (fyzikálne inžinierstvo)		
RNDr. Dagmar Gregušová, DrSc. (elektronika)		
Ing. Ján Kuzmík, DrSc. (teoretická elektrotechnika)		
Ing. Ján Kuzmík, DrSc. (elektronika)		
doc. RNDr. Martin Moško, DrSc. (fyzika kondenzovaných látok a akustika)		
doc. RNDr. Martin Moško, DrSc. (chemická fyzika)		
doc. RNDr. Martin Moško, DrSc. (teoretická elektrotechnika)		
doc. RNDr. Martin Moško, DrSc. (fyzikálne inžinierstvo)		
doc. Ing. Jozef Novák, DrSc. (elektronika)		
Ing. Milan Ťapajna, PhD. (elektronika)		
Ing. Gabriel Vanko, PhD. (elektronika)		

### 3.8. Údaje o pedagogickej činnosti

Tabuľka 3i Prednášky a cvičenia vedené v roku 2020

PEDAGOGICKÁ ČINNOSŤ	Prednášky		Cvičenia a semináre	
	doma	v zahraničí	doma	v zahraničí
Počet prednášateľov alebo vedúcich cvičení	1	0	2	0
Celkový počet hodín v r. 2020	4	0	20	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	8
2.	Počet vedených alebo konzultovaných diplomových a bakalárskych prác	9
3.	Počet pracovníkov, ktorí pôsobili ako školitelia doktorandov (PhD.)	16
4.	Počet školených doktorandov (aj pre iné inštitúcie)	21
5.	Počet oponovaných dizertačných a habilitačných prác	3
6.	Počet pracovníkov, ktorí oponovali dizertačné a habilitačné práce	3
7.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby DrSc. prác	2
8.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby PhD. prác	2
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

Tradične Ústav zamestnáva VŠ študentov formou VPS. Ich práca často vyústi do prípravy semestrálnych, bakalárskych a diplomových prác. V r. 2020 ich bolo 8.

F. Gömöry (Sirotková, Godár bakalári FEI STU)

F. Gucmann (Hrubíšák diplomant FEI STU)

Š. Chromík (M. Bennár bakalár FEI STU)

A. Mošková (M. Jenča diplomant FMFI UK)

M. Sojková (Tašková bakalárka PrF UK)

M. Ľapajna (Sobota diplomant FEI STU)

Z. Zápražný (Ferkodič MTF STU)

B. Zaťko (Novák diplomant FEI STU)

## 4. Medzinárodná vedecká spolupráca

### 4.1. Medzinárodné vedecké podujatia

#### 4.1.1. Medzinárodné vedecké podujatia, ktoré organizácia SAV organizovala v roku 2020 alebo sa na ich organizácii podieľala, s vyhodnotením vedeckého a spoločenského prínosu podujatia

ASDAM 2020, Smolenice - zrušená z dôvodu pandémie COVID-19, 11.10.-14.10.2020

Ústav bol organizátorom konferencie ASDAM 2020 (13th International Conference of Advanced Semiconductor Devices and Microsystems), ktorá sa napokon kvôli zhoršenej pandemickej situácii neuskutočnila. Bol však spracovaný konferenčný zborník, ktorý bol odoslaný na zverejnenie v IEEE Xplore a je v súčasnosti v schvaľovacom procese.

#### 4.1.2. Medzinárodné vedecké podujatia, ktoré usporiada organizácia SAV v roku 2021 (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	0	0
Novák Jozef	0	0	1
<b>Spolu</b>	1	0	1

### 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.

European Society for Applied Superconductivity (funkcia: člen výboru)

Ing. Pavol Kováč, DrSc.

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

Mgr. Enric Pardo, PhD.

HTS Modelling Workgroup (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
-----------------	-----------------------------	-----------------------------

Vanko Gabriel	NCN Poland	10
---------------	------------	----

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

*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 2020

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

Čo sa týka týchto činností, vedenie ústavu sa riadi Strategickým plánom a odporúčaniami Advisory Boardu (AB). V praxi EIÚ SAV to znamená:

- Advisory Board dala 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 ho rešpektovali a konštatoval pokrok v mnohých oblastiach. V r. 2020 sme pokračovali v práci v zmysle týchto odporúčaní:
- Bola definovaná misia ústavu, stratégia oddelení a ujasnili sme si, čo považujeme za úspech pre jednotlivé riešené témy.
- Prehodnotili sme prístup k hodnoteniu VP – v článkoch má byť štandardne PhD študent ako prvý autor a školiteľ ako posledný autor, v hodnotení sú obaja preferovaní pred ostatnými autormi.
- V r. 2019 sme vytvorili 4 nové postdoc pozície – cez medzinárodný tender (EuroAccess), niektorí z prijatých pracovníkov však nastúpili až v r. 2020.
- V r. 2020 sme opäť vypísali nové pozície cez EuroAccess aj pre doktorandov aj pre postdoktorandov. Získali sme 3 doktorandov, z viacerých postdoktorandov však noví nenastúpili – asi aj z dôvodu pandémie.
- Úspešne sme omladili ústav aj vďaka mladým pracovníkom, ktorí sa vrátili zo sveta a začali pracovať na našom ústave (B. Hudec z Taiwanu, M. Varga z Prahy – získal projekt MorePro).

- Opäť sme boli úspešní v EU projektoch, podali sme viacero, dva úspešne – začnú v r. 2021.
- Podali/získali sme 4 patenty – podobne ako v r. 2019. Dva z nich si vyžadujú zvýšenú pozornosť:
- PCT prihláška Názov: ATOMIC LAYER PROCESS PRINTER. Číslo: PCT/EP2020/065396. Pôvodcovia: PLAKHOTNYUK, Maksym; HANSEN, Ole; ANJA, Boisen; RINDZEVICIUS, Tomas; **KUNDRATA, Ivan; FRÖHLICH, Karol;** BACHMANN, Julien. Spoluprihlasovatelia: DANMARKS TEKNISKE UNIVERSITET; FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG
- Patent J. Kuzmíka – vstúpil do národných fáz – ochrana v Japonsku.
- Hospodárska činnosť bola v r. 2020 na úrovni – spolu za 56 500 €

Na tieto výsledky môžeme byť právom hrdí. Naďalej však máme rezervy, na ktoré nás AB upozornil v r. 2019:

- Zvýšiť treba vedeckú produkciu na hlavu.
- Prijali sme málo doktorandov napriek tomu, že v r. 2020 sme využili EuroAccess.
- Zlepšiť treba spoluprácu naprieč ústavom, získame tým pridanú hodnotu v prierezových témach.
- Zvýšiť aktivitu na sociálnych sieťach - Google Scholar, Research Gate, atď.

Na týchto úlohách budeme v ďalšom období pracovať popri skvalitňovaní vedeckých výstupov a ďalšom 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 aplikačných 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**

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

### **6.4. Iné typy spoločných aktivít s inštitúciami mimo SAV**

## **7. Aplikácia výsledkov výskumu v spoločenskej a hospodárskej praxi**

### **7.1. Výsledky výskumu organizácie aplikované v praxi**

#### **7.2. Kontraktový – zmluvný výskum (vrátane zahraničných kontraktov)**

**Názov/účel kontraktového výskumu:** Meranie rezistivity vysokoodporových vzoriek SiC

**Zadávateľ výskumného kontraktu:** RHP Technology GmbH, Austria

**Začiatok spolupráce:** 2020

**Ukončenie spolupráce:** trvá

**Finančný prínos pre organizáciu (€):** 1800

Názov/účel kontraktového výskumu: Hallove senzory pre kryogénne teploty

Zadávateľ výskumného kontraktu: European X-Ray Free-Electron Laser Facility (XFEL) GmbH, Nemecko

Začiatok spolupráce: 2020

Ukončenie spolupráce: 2020

Finančný prínos pre organizáciu (€): 3020

Názov/účel kontraktového výskumu: Hallove senzory pre kryogénne teploty

Zadávateľ výskumného kontraktu: Forschungszentrum Jülich GmbH, Nemecko

Začiatok spolupráce: 2020

Ukončenie spolupráce: 2020

Finančný prínos pre organizáciu (€): 1680

Názov/účel kontraktového výskumu: Performance of high temperature superconducting tapes

Zadávateľ výskumného kontraktu: GSI Darmstadt, Nemecko

Začiatok spolupráce: 2020

Ukončenie spolupráce: 2020

Finančný prínos pre organizáciu (€): 50000

### 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
RNDr. Vladimír Cambel, DrSc.	Komisia pre SUJV Dubna pri vláde SR	člen
doc. Ing. Fedor Gömöry, DrSc.	Akreditačná komisia	člen Pracovnej skupiny pre elektrotechniku
	SKVH	člen
Ing. Pavol Kováč, DrSc.	SKVH	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	2	tlač	1	TV	0
rozhlasy	0	internet	2	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
ASDAM 2020	medzinárodná	Smolenice - zrušená z dôvodu pandémie COVID-19	11.10.-14.10.2020	-

#### 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)

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		2171
z toho	knihy a zviazané periodiká	1215
	audiovizuálne dokumenty	
	elektronické dokumenty (vrátane digitálnych)	146
	mikroformy	
	iné špeciálne dokumenty - dizertácie, výskumné správy	810
	Rukopisy, vzácne tlače	
Počet titulov dochádzajúcich periodík		3
z toho zahraničné periodiká		1
Ročný prírastok knižničných jednotiek		0

v tom	kúpou	
	darom	
	výmenou	
	bezodplatným prevodom	
	náhradou	
Úbytky knižničných jednotiek		6106
Knižničné jednotky spracované automatizovane		1215

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

<b>Výpožičky spolu (riadok 1)</b>		0
v tom z r. 1	prezenčné výpožičky	
	absenčné výpožičky	
v tom z r. 1	odborná literatúra pre dospelých	
	výpožičky periodík	
MVS iným knižniciam		0
MVS z iných knižníc		0
MMVS iným knižniciam		0
MMVS z iných knižníc		0
Počet vypracovaných bibliografií		0
Počet vypracovaných rešerší		215

## 10.3. Používatelia

Tabuľka 10c Používatelia

Registrovaní používatelia	113
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 €	0

## 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

### **11.2. Členstvo v Predsedníctve SAV a vo Vedeckej rade SAV**

### **11.3. Členstvo vo vedeckých kolégiách SAV**

RNDr. Vladimír Cambel, DrSc.

- VK SAV pre elektroniku, materiálový výskum a technológie (člen)

Ing. Pavol Kováč, DrSc.

- VK SAV pre elektroniku, materiálový výskum a technológie (predseda)

doc. RNDr. Martin Moško, DrSc.

- VK SAV pre matematiku, fyziku a informatiku (podpredseda)

### **11.4. 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.

- Komisia SAV pre infraštruktúru a štrukturálne fondy (člen - zástupca Snemu SAV)
- 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)

### **11.5. Členstvo v orgánoch VEGA**

doc. RNDr. Edmund Dobročka, CSc.

- Komisia VEGA č. 7 pre strojárstvo a príbuzné odbory informačných a komunikačných technológií a materiálové inžinierstvo (člen)

Dr. rer. nat. Martin Hulman

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

Ing. Štefan Chromik, DrSc.

- Komisia č. 5 elektrotechniku, automatizáciu a riadiace systémy a príbuzné odbory informačných a komunikačných technológií (podpredseda)

Ing. Jozef Osvald, DrSc.

- Komisia č. 5 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. 2020 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
<b>1. Bežné výdavky</b>	3 322 487,08	2 373 260,83	613 596,00	335 630,25	71,43
z toho: mzdy (610)	1 787 682,46	1 466 264,59	179 189,00	142 228,87	82,02
vedecká výchova štipendiá (640)	170 453,58	154 128,00	0,00	16 325,58	90,42
poistné a príspevok do poisťovní (620)	602 145,80	493 670,52	62 626,60	45 848,68	81,99
tovary a služby (630)	608 377,46	256 947,61	226 230,40	125 199,45	42,23
transfery partnerom projektov (640)	145 550,00	0,00	145 550,00	0,00	0,00
<b>2. Kapitálové výdavky</b>	89 913,26	52 000,00	0,00	37 913,26	57,83
z toho: obstarávanie kapitálových aktív	89 913,26	52 000,00	0,00	37 913,26	57,83
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. 2020 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
<b>1. kapitola SAV (111)</b>	2 014 935,11	55 000,00	1 466 264,59	493 670,52	0,00
z toho: VEGA	139 203,00	23 000,00	0,00	0,00	0,00
MVTS výskumné projekty	0,00	0,00	0,00	0,00	0,00
MVTS podpora	48 943,00	7 000,00	0,00	0,00	0,00
SASPRO/MOREPRO	6 747,50	0,00	5 000,00	1 747,50	0,00
Vydávanie časopisov	2 086,00	0,00	0,00	0,00	2 086,00
Vedecká výchova (štipendiá)	154 128,00	0,00	0,00	0,00	0,00

OTAS (630)	61 231,89	0,00	0,00	0,00	0,00
<b>2. ŠF EÚ vr. fin. zo ŠR</b>	40 100,72	0,00	28 196,30	9 644,33	0,00
<b>3. medzinárodné grantové projekty</b>	248 761,02	0,00	109 516,55	31 456,82	0,00
z toho: H2020	248 761,02	0,00	0,00	0,00	0,00
<b>4. iné štátne a verejné zdroje (spolu)</b>	623 272,00	0,00	179 189,00	62 626,00	145 550,00
z toho: APVV	623 272,00	0,00	179 189,00	62 626,00	145 550,00
podpora z kapitoly MŠVVaŠ SR (stimuly)	0,00	0,00	0,00	0,00	0,00
<b>5. ostatné zdroje</b>	61 535,04	37 913,26	4 516,02	4 747,53	0,00
z toho: príjmy z prenájmu	0,00	0,00	0,00	0,00	0,00
príjmy z podnikateľskej činnosti	0,00	0,00	0,00	0,00	0,00
príjmy z expertnej činnosti a služieb	61 535,04	37 913,26	4 516,02	4 747,53	0,00

### 13. Nadácie a fondy pri organizácii SAV

### 14. Iné významné činnosti organizácie SAV

### 15. Vyznamenania, ocenenia a ceny udelené pracovníkom organizácie v roku 2020

#### 15.1. Domáce ocenenia

##### 15.1.1. Ocenenia SAV

##### 15.1.2. Iné domáce ocenenia

##### Kováč Pavol

Cenu za Vedecký tím roka

*Oceňovateľ: MŠVVŠ*

*Opis: spolu s tímom ÚMMS SAV*

#### 15.2. Medzinárodné ocenenia

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

### 17. Problémy a podnety pre činnosť SAV

#### Pandémia

Rok 2020 bol poznačený pandémiou, ktorá ovplyvnila zdravie občanov (aj psychické), mnohé odvetvia – priemysel, služby, dopravu, šport, ako aj sociálne kontakty, životný štýl a hodnotové rebríčky. Má vplyv aj na štýl vedeckej práce, kontakty, konferencie, výber vedeckých tém a ich perspektívy.

**Šírenie pandémie** je nejednoznačné, závisí od správania sa komunity, prijatých opatrení a pod., avšak **pre riadenie vedeckej inštitúcie** je potrebné vedieť aspoň približne predvídať vývoj situácie. Na EIÚ sa opierame o model I. Bošňáka (Dáta bez pátosu), podľa ktorého mobilita určuje, koľko ľudí nakazí 1 človek (za ~10 dní) -  $R_0$ , číslo  $R_0$  určí nárast počtu infikovaných o  $N_1$  asi za 10 dní, o ďalších 10 dní –  $N_1$  infikovaných určí nárast hospitalizovaných o  $N_2$ , a o ďalších 10 dní  $N_2$  hospitalizovaných určí nárast počtu mŕtvych o  $N_3$ .

Štatistiky ukazujú, že platia približne vzťahy  $N_3 \sim 1.3 \% N_1$  a  $N_3 \sim 20\% N_2$ .

**Kľúčom je teda mobilita obyvateľstva** (testy slúžia na presné určenie počtu infikovaných), ktorú treba v prípade rozbehu pandémie pribrzdiť lockdownom, pričom inštitúcie a firmy prechádzajú na prácu doma.

Vedecké inštitúcie SAV sú v porovnaní s niektorými sektormi v značnej výhode – môžu prejsť na prácu doma vo veľkom počte, pričom štát garantuje pracovníkom platy. **Postihnutá je však najmä experimentálna časť výskumu** – krátkodobý výpadok experimentov je možný, avšak dlhodobý nie. Nepříjemná je aj **neúčast vedcov na konferenciách** kvôli výmene najnovších poznatkov.

**Krízový štáb na EIÚ** vznikol v marci 2020 s cieľom ochrany pracovníkov EIÚ pred pandémiou pri zabezpečení kontinuity ich vedecko/výchovnej práce. KŠ EIÚ prijíma opatrenia na základe nariadení vlády a hlavného hygienika (PSAV dáva iba odporúčania na základe týchto nariadení). Na

základe týchto odporúčaní (semaforu) a modelu I. Bošňáka sú na EIÚ **3 možné módy práce** v závislosti na počte infikovaných na ústave a situácie v štáte/okrese BA:

1. **štandardný** – ústav je bez prípadu **a** málo infikovaných v SK/BA
2. **1 pracovník/kanc.** – ústav má 1 infikovaného **a/alebo** situácia v SK/BA zlá
3. **zavretý ústav** – ústav má 2 a viac infikovaných **alebo** situácia v SK/BA veľmi zlá.

**Zatiaľ sme mali v EIÚ 2 prípady infikovaných v decembri, ktorí, možno aj vďaka nášmu systému, nemali úzke kontakty priamo na ústave.**

**Začiatok roka 2021 začína ústav v móde 3 pre veľmi zlú situáciu v SK/BA.**

## Vedecké výsledky EIÚ

V r. 2020 bola naďalej najsilnejšia stránka ústavu projekty – riešili sme 5 H2020 projektov a 16 APVV projektov. Narástol nám aj počet publikácií a citácií oproti r. 2019, avšak evidujeme menší počet prác s dominantným príspevkom našich VP. Takže hlavným nedostatkom EIÚ je naďalej slabá vedecká výkonnosť prepočítaná na vedeckého pracovníka VP. Avšak, ako neskôr uvádzame, podarilo sa nám získať množstvo perspektívnych vedeckých pracovníkov, takže veríme, že v blízkom období našu produktivitu zvýšime.

## Mzdová reforma a personálne posilnenie ústavu

EIÚ SAV vysoko cení mzdovú reformu PSAV – pred ňou ústavy dostávali financie bez ohľadu na skutočný počet zamestnancov - keď ústav prepustil polovicu zamestnancov, platy sa zdvojnásobili. Reformou sa nastoľuje spravodlivejšie pridelovanie financií z centrálnych zdrojov – na FTE pracoviska.

Zvláštnosťou EIÚ je, že v r. 2020 naše FTE prudko zakolísalo – v druhom štvrťroku bol iba 76, avšak na konci roka 84. Je to dané nástupom pracovníkov, ktorých sme oslovovali už dlhší čas, no nástup si posunuli po jarnej pandémii, ďalej návratom pracovníkov z materskej, návratom pracovníkov zo zahraničia, ako aj zamestnaním doktorandov, ktorí nestihli ukončiť PhD po troch rokoch štúdia.

V r. 2019/2020 nastúpilo 7 perspektívnych pracovníkov do 3 oddelení:

• N. Gál	– postdoc	– odd OMS		Po
PhD. štúdiu				
• L. Pribusová	– postdoc	– odd OFTN		Po
PhD. štúdiu				
• F. Gucman	– postdoc	– odd OTTP	33 r.	2 r.
Bristol				
• T. Izsák	– postdoc	– odd OMS	38 r.	8 r.
Praha				
• M. Varga	– MorePro	– odd OMS	39 r.	9 r.
Praha				
• B. Hudec	– AtoPlot	– odd OFTN	36 r.	5 r.
Taiwan				
• V. Skákalová	– vedúca VP	– odd OFTN		25 r.
Nemecko,				

Izrael, Rakúsko

V r. 2020 sme opäť hľadali nových postdoktorandov cez EuroAccess, mali sme vyše 100 záujemcov, no z vybraných adeptov nik nenastúpil, zrejme aj kvôli pandémii. V tomto úsilí budeme pokračovať v r. 2021.

### **Technická infraštruktúra, úprava priestorov**

V r. 2020 sme investovali nemalé prostriedky do opráv/úprav/zakúpení prístrojov a technológií, ako aj na úpravy pracovných priestorov a kancelárií. Celkovo sme investovali až 150 000 €, pričom nám veľmi dobre padla možnosť výmeny VNV VEGA prostriedkov za prostriedky investičné – vďaka tomu sme zakúpili novú ALD techniku v hodnote asi 75 000 €. Takýmto spôsobom sme veľmi účelne a efektívne využili aj prostriedky projektov pôvodne určené na cestovné a konferencie.

**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, 02/ 5922 2908

Schválila vedecká rada organizácie SAV dňa 20.1.2021

**Riaditeľ organizácie SAV**



.....  
RNDr. Vladimír Cambel, DrSc.

**Predseda vedeckej rady**



.....  
RNDr. Dagmar Gregušová, DrSc.

**Prílohy****Príloha A****Zoznam zamestnancov a doktorandov organizácie k 31.12.2020****Zoznam zamestnancov podľa štruktúry**

	<b>Meno s titulmi</b>	<b>Úväzok (v %)</b>	<b>Ročný prepočítaný úväzok</b>
<b>Vedúci vedeckí pracovníci DrSc.</b>			
1.	RNDr. Vladimír Cambel, DrSc.	100	1.00
2.	Ing. Karol Fröhlich, DrSc.	50	0.50
3.	doc. Ing. Fedor Gömöry, DrSc.	100	1.00
4.	RNDr. Dagmar Gregušová, DrSc.	100	1.00
5.	Ing. Štefan Chromík, DrSc.	60	0.60
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	0.60
10.	Ing. Jozef Osvald, DrSc.	60	0.60
11.	doc. Ing. Viera Skákalová, DrSc.	60	0.20
<b>Vedúci vedeckí pracovníci CSc., PhD.</b>			
1.	Ing. František Dubecký, CSc.	20	0.20
<b>Samostatní vedeckí pracovníci</b>			
1.	Ing. Michal Blaho, PhD.	100	0.67
2.	RNDr. Pavol Boháček, CSc.	60	0.60
3.	doc. RNDr. Edmund Dobročka, CSc.	100	1.00
4.	Ing. Ján Fedor, PhD	100	1.00
5.	Ing. Filip Guemann, PhD.	100	1.00
6.	RNDr. Štefan Haščík, PhD.	100	1.00
7.	Dr. rer. nat. Martin Hulman	100	1.00
8.	Ing. Jozef Huran, CSc.	100	0.00
9.	Ing. Tibor Izsák, PhD.	100	0.92
10.	RNDr. Dušan Korytár, CSc.	30	0.30
11.	Mgr. Ján Kováč, PhD.	100	1.00
12.	RNDr. Michal Kučera, PhD	100	1.00
13.	Ing. Róbert Kúdela, CSc.	40	0.40
14.	Ing. Peter Lobotka, CSc.	40	0.40

15.	RNDr. Antónia Mošková, CSc.	100	1.00
16.	Dr. Michal Mruczkiewicz	50	0.50
17.	Mgr. Enric Pardo, PhD.	100	1.00
18.	Ing. Jozef Pitel, CSc.	100	0.00
19.	Ing. Alica Rosová, CSc.	100	1.00
20.	Mgr. Eugen Seiler, PhD	100	1.00
21.	Mgr. Michaela Sojková, PhD.	100	1.00
22.	Mgr. Mykola Soloviov, PhD.	100	1.00
23.	Ing. Roman Stoklas, PhD.	100	1.00
24.	Ing. Ján Šoltýs, PhD	100	1.00
25.	Ing. Ján Šouc, CSc.	100	1.00
26.	RNDr. Marianna Španková, PhD	100	1.00
27.	RNDr. Vladimír Štrbík, CSc.	20	0.20
28.	Ing. Milan Ťapajna, PhD.	70	0.70
29.	Ing. Jaroslav Tóvik, PhD.	80	0.80
30.	Ing. Gabriel Vanko, PhD.	100	1.00
31.	Ing. Zdenko Zápražný, PhD.	100	1.00
32.	Mgr. Bohumír Zaťko, PhD	100	1.00
<b>Vedeckí pracovníci</b>			
1.	Ing. Jozef Fabian, CSc	100	1.00
2.	Mgr. Juraj Feilhauer, PhD.	100	1.00
3.	Ing. Norbert Gál, PhD.	100	1.00
4.	Ing. Ladislav Hrubčín, CSc.	10	0.00
5.	Ing. Boris Hudec, PhD.	100	0.50
6.	Ing. Milan Kapolka, PhD.	100	0.00
7.	Mgr. Agáta Laurenčíková, PhD.	100	0.00
8.	Mgr. Peter Nádaždy, PhD.	50	0.35
9.	Ing. Marián Precner, PhD.	100	1.00
10.	RNDr. Lenka Pribusová Slušná, PhD.	100	1.00
11.	Ing. Tomáš Ščepka, PhD.	100	0.67
12.	Ing. Marian Varga, PhD.	100	0.42
<b>Odborní pracovníci s VŠ vzdelaním (výskumní a vývojoví zamestnanci)</b>			
1.	Ing. Dušan Berek	100	1.00
2.	Mgr. Konstantin Bublikov	10	0.10
3.	Ing. Marek Búran	10	0.10

4.	MSc. Anang Dadhich	10	0.10
5.	Mgr. Fridrich Egyenes-Pörsök	10	0.10
6.	Ing. Peter Eliáš	100	1.00
7.	Ing. Lubomír Frolek	100	1.00
8.	MSc. Asef Ghabeli Juybari	10	0.10
9.	Ing. Stanislav Hasenöhr	100	1.00
10.	Mgr. Jana Hrdá	10	0.03
11.	Ing. Imrich Hušek	100	1.00
12.	RNDr. Kristína Hušeková	100	1.00
13.	Mgr. Peter Hutár	100	0.55
14.	Ing. Eva Kováčová	100	1.00
15.	Sergei Krylov	10	0.10
16.	Ing. Martin Kucharovič	10	0.03
17.	Ing. Tomáš Kujovič	100	0.40
18.	Ing. Tibor Melišek	100	1.00
19.	Ing. Marek Mošat'	100	0.40
20.	RNDr. Katarína Neilinger	10	0.04
21.	Ing. Ondrej Pohorelec	10	0.10
22.	Ing. Rastislav Ries	100	0.40
23.	Mgr. Mária Sekáčová	60	0.80
24.	Mgr. Peter Šichman	10	0.10
25.	Ing. Marcel Talacko	50	0.43
26.	Mgr. Iuliia Vetrova	10	0.10
27.	Mgr. Tatiana Vojteková	10	0.03
<b>Odborní pracovníci s VŠ vzdelaním (ostatní zamestnanci)</b>			
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
<b>Odborní pracovníci ÚSV</b>			
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	60	0.70
16.	Iveta Tóthová	50	0.50
17.	Margita Valentínová	50	0.65
18.	Michal Vrbovský	100	1.00
<b>Ostatní pracovníci</b>			
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
<b>Samostatní vedeckí pracovníci</b>			
1.	Ing. Michal Vojenčiak, PhD.	29.2.2020	0.17
<b>Vedeckí pracovníci</b>			
1.	Mgr. Mária Koscelanská, PhD.	31.1.2020	0.08
<b>Odborní pracovníci s VŠ vzdelaním (výskumní a vývojoví zamestnanci)</b>			
1.	Mgr. Štefan Gaži	30.4.2020	0.07
2.	Ing. Bronislava Gelušiaková	18.9.2020	0.03
3.	Ing. Prerna Chauhan, PhD.	31.1.2020	0.08
4.	Ing. Ivan Kundrata	30.4.2020	0.03
5.	Ing. Edita Mikulášová	31.5.2020	0.04

<b>Odborní pracovníci ÚSV</b>			
1.	Dagmar Erbenová	30.3.2020	0.20

**Zoznam doktorandov**

	<b>Meno s titulmi</b>	<b>Škola/fakulta</b>	<b>Študijný odbor</b>
<b>Interní doktorandi hrazení z prostředků SAV</b>			
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.	MSc. Anang Dadhich	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
4.	Mgr. Fridrich Egyenes-Pörsök	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
5.	MSc. Asef Ghabeli Juybari	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
6.	Mgr. Jana Hrdá	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
7.	Mgr. Peter Hutár	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
8.	Sergei Krylov	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
9.	Ing. Martin Kucharovič	Fakulta elektrotechniky a informatiky STU	5.2.9 elektrotechnika
10.	Mgr. Katarína Neilinger	Fakulta matematiky, fyziky a informatiky UK	4.1.3 fyzika kondenzovaných látok a akustika
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
<b>Interní doktorandi hrazení z iných zdrojov</b>			
1.	Ing. Tomáš Kujovič	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
2.	Ing. Marek Mošat'	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
3.	Ing. Rastislav Ries	Fakulta elektrotechniky a informatiky STU	5.2.48 fyzikálne inžinierstvo
<b>Externí doktorandi</b>			
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.**

	<b>Meno s titulmi</b>	<b>Dátum obhajoby</b>	<b>Dátum prijatia</b>	<b>Úväzok (v %)</b>
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**Zoznam emeritných vedeckých zamestnancov**

	<b>Meno s titulmi</b>
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## **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:** -

Dosiahnuté výsledky:

##### **Programy: COST**

**2.) 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:** SAV: 20000 €

Dosiahnuté výsledky:

##### **Programy: Bilaterálne - iné**

**3.) Vývoj nových vodivých priehľadných elektród pre organickú elektroniku** (*Development of new designed transparent conductive electrodes for organic electronics*)

**Zodpovedný riešiteľ:** Karol Fröhlich  
**Trvanie projektu:** 1.2.2017 / 31.1.2020

**Evidenčné číslo projektu:**

**Organizácia je** áno

**koordinátorom projektu:**

**Koordinátor:** Elektrotechnický ústav SAV

**Počet spoluriešiteľských** 1 - Turecko: 1

**inštitúcií:**

**Čerpané financie:** SAV: 4167 €

Dosiahnuté výsledky:

**4.) 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** áno

**koordinátorom projektu:**

**Koordinátor:** Elektrotechnický ústav SAV

**Počet spoluriešiteľských** 2 - Rakúsko: 1, Česko: 1

**inštitúcií:**

**Čerpané financie:** -

Dosiahnuté výsledky:

T. Izsák, G. Vanko, M. Držík, S. Kasemann, J. Zehetner, M. Vojs, B. Zaťko, Š. Potocký, A. Kromka: Front-side diamond deposition on the GaN membranes. In: ASDAM 2020, The 13th International Conference on Advanced Semiconductor Devices And Microsystems. Eds. T. Izsák et al. IEEE 2020. ISBN 978-1-7281-9776-0. P. 42-45.

O. Babcenko, T. Izsák, M. Varga, K. Aubrechtová Dragounová, S. Potocky, S. Stehlik, G. Vanko, L. Gajdosova, S. Kasemann, J. Zehetner, A. Kromka: Optimization of diamond growth on structured, soft and brittle substrates. In: ASDAM 2020, The 13th International Conference on Advanced Semiconductor Devices And Microsystems. Eds. T. Izsák et al. IEEE 2020. ISBN 978-1-7281-9776-0. P. 46-50.

T. Izsák, G. Vanko, M. Držík, S. Kasemann, J. Zehetner, M. Vojs, B. Zaťko, Š. Potocký and A. Kromka, Direct Deposition of CVD Diamond Layers on the Top of GaN Membranes, in press, journal: Proceedings (ISSN 2504-3900) 2020, vol 51(x), Manuscript ID: proceedings-1041488, DOI: (later), <https://www.mdpi.com/journal/proceedings>

J. Zehetner, A. Kromka, T. Izsák, G. Vanko, L. Gajdošová and S. Kasemann, Fabrication of Diamond Membranes by Femtosecond Laser Ablation for MEMS Sensor Applications, in press, journal: Proceedings (ISSN 2504-3900) 2020, vol 51(x), Manuscript ID: proceedings-1041463, DOI: (later), <https://www.mdpi.com/journal/proceedings>

**Programy: ERANET**

**5.) 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:** SAV: 12500 €

Dosiahnuté výsledky:

**6.) 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: 25000 €

Dosiahnuté výsledky:

Ognev, A.V., Kolesnikov, A.G., Kim, Y. J., Cha, I. H., Sadovnikov, A.V., Nikitov, S.A., Soldatov, I.V., Talapatra, A., Mohanty, J., Mruczkiewicz, M., Ge, Y., Kerber, N., Dittrich, F., Virnau, P., Kläui, M., Kim, Y. K., and Samardak, A.S.: Magnetic direct-write skyrmion nanolithography, ACS Nano 14 (2020) 14960–14970.

Feilhauer, J., Saha S., Tóbiš, J., Zelent M. , Heyderman L. J., and Mruczkiewicz, M.: Controlled motion of skyrmions in a magnetic antidot lattice, Phys. Rev. B 102 (2020) 184425.

**Programy: Horizont 2020**

**7.) 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: 65617 €

Dosiahnuté výsledky:

**8.) Nákladovo efektívne obmedzovače skratových prúdov využívajúce pokročilé supravodivé pásy pre budúce vysokonapäťové jednosmerne rozvodné siete** (*Cost effective FCL using advanced superconducting tapes for future HVDC grids*)

**Zodpovedný riešiteľ:** Fedor Gömöry  
**Trvanie projektu:** 1.1.2017 / 30.11.2020  
**Evidenčné číslo projektu:** H2020-721019  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** CNRS  
**Počet spoluriešiteľských inštitúcií:** 7 - Kanada: 1, Nemecko: 0, Španielsko: 1, Francúzsko: 1, Švajčiarsko: 1, Izrael: 1, Taliansko: 1, Slovensko: 1  
**Čerpané financie:** EÚ: 64307 €  
Podpora medzinárodnej spolupráce z národných zdrojov: 4415 €

Dosiahnuté výsledky:

Pekarčíková, M., Mišík, J., Drienovsky, M., Krajčovič, J., Vojenčiak, M., Búran, M., Mošat', M., Húlan, T., Skarba, M., Cuninková, E., and Gömöry, F.: Composite heat sink material for superconducting tape in fault current limiter applications, *Materials* 13 (2020) 1832.

**9.) 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 members of the EUROfusion consortium*)

**Zodpovedný riešiteľ:** Fedor Gömöry  
**Trvanie projektu:** 1.1.2014 / 31.12.2020  
**Evidenčné číslo projektu:** Horizon2020-633053  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** Max-Planck Gesellschaft zur Forderung der Wissenschaften E.V.  
**Počet spoluriešiteľských inštitúcií:** 33 - Rakúsko: 1, Belgicko: 1, Bulharsko: 1, 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: 1858 €  
Podpora medzinárodnej spolupráce z národných zdrojov: 3440 €

Dosiahnuté výsledky:

Sedlak, K., Anvar, V.A., Bagrets, N., Biancolini, M.E., Bonifetto, R., Bonne, F., Boso, D., Brighenti, A., Bruzzzone, P., Celentano, G., Chiappa, A., D'Auria, V., Dan, M., Decool, P., della Corte, A., Dembkowska, A., Dicuonzo, O., Duran, I., Eisterer, M., Ferro, A., Fiamozzi Zignani, C., Fietz, W.H., Frittitta, C., Gaio, E., Giannini, L., Giorgetti, F., Gömöry, F., Granados, X., Guarino, R., Heller, R., Hoa, C., Ivashov, I., Jiolat, G., Jirsa, M., Jose, B., Kembleton, R., Kumar, M., Lacroix, B., Le Coz, Q., Lewandowska, M., Maistrello, A., Misiara, N., Morici, L., Muzzi, L., Nicollet, S., Nijhuis, A., Nunio, F., Portafaix, C., Romanelli, G., Sarasola, X., Savoldi, L., Stepanov, B., Tiseanu, I., Tomassetti, G., Torre, A., Turt?, S., Uglietti, D., Vallcorba, R., Viererbl, L., Vojenciak, M., Vorpahl, C., Weiss, K.P., Wesche, R., Wolf, M.J., Zani, L., Zanino, R.,

Zappatore, A., and Corato, V.: Advance in the conceptual design of the European DEMO magnet system, Supercond. Sci Technol. 33 (2020) 044013. IF 3.067, Q 1

Kujovič, T. and Gömöry, F.: Influence of local deformation on critical current of high temperature superconductor tape, J. Phys.: Conf. Ser. 1559 (2020) 012050.

#### **10.) Pokročilý experimentálny model supravodivého motora** (*Advanced superconducting motor experimental demonstrator*)

**Zodpovedný riešiteľ:** Enric Pardo  
**Trvanie projektu:** 1.5.2017 / 31.8.2020  
**Evidenčné číslo projektu:** Horizon2020-723119  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** OSWALD ELEKTROMOTOREN GMBH  
**Počet spoluriešiteľských inštitúcií:** 7 - Nemecko: 1, Francúzsko: 1, Veľká Británia: 3, Holandsko: 1, Rusko: 1  
**Čerpané financie:** EÚ: 33798 €  
Podpora medzinárodnej spolupráce z národných zdrojov: 1605 €

##### Dosiahnuté výsledky:

Dadhich, A., Pardo, E., and Kapolka, M.: Time constant of the transverse-field demagnetization of superconducting stacks of tapes, Supercond. Sci Technol. 33 (2020) 065003.

Kapolka, M., Pardo, E., Grilli, F., Baskys, A., Climente-Alarcon, V., Dadhich, A., and Glowacki, B.A.: Cross-field demagnetization of stacks of tapes: 3D modeling and measurements, Supercond. Sci Technol. 33 (2020) 044019.

Li, S., Kováč, J., and Pardo, E.: Coupling loss at the end connections of REBCO stacks: 2D modelling and measurement, Supercond. Sci Technol. 33 (2020) 075014.

Dadhich, A. and Pardo, E.: Modeling cross-field demagnetization of superconducting stacks and bulks for up to 100 tapes and 2 million cycles, Sci Rep. 10 (2020) 19265.

Benkel, T., Lao, M., Liu, Y., Pardo, E., Wolfstädler, S., Reis, T., and Grilli, F.: T–A-formulation to model electrical machines with HTS coated conductor coils, IEEE Trans. Applied Supercond. 30 (2020) 5205807. IF 1.692, Q 2

Grilli, F., Benkel, T., Hänisch, J., Lao, M., Reis, T., Berberich, E., Wolfstädter, S., Schneider, C., Miller, P., Palmer, C., Glowacki, B., Climente-Alarcon, V., Smara, A., Tomkow, L., Teigelkötter, J., Stock, A., Büdel, J., Jeunesse, L., Staempflin, M., Delautre, G., Zimmermann, B., van der Woude, R., Perez, A., Samoilenkov, S., Molodyk, A., Pardo, E., Kapolka, M., Li, S., and Dadhich, A.: Superconducting motors for aircraft propulsion: the advanced superconducting motor experimental demonstrator project, J. Phys.: Conf. Ser. 1590 (2020) 012051.

##### Pozvané prednášky:

Pardo, E., Kováč, J., Kopera, L., Ries, R., Grilli, F., Berberich, E., and Reis, T.: AC loss in the REBCO stator of a 1 MW motor for aviation. In: 33th Inter. Symp. on Supercond. - ISS 2020. Tsukuba 2020.

Pardo, E., Dadhich, A., Li, S., Kapolka, M., Solovyov, M., Mošat', M., Kováč, J., and Šouc, J.:

Modeling and measuring the cross field demagnetization of REBCO stacks and bulks for millions of cycles. In Applied Supercond. Conf. 2020 Virtual Conf. (organized in USA).

Grilli, F., Benkel, T., Hänisch, J., Reis, T., Berberich, E., Wolfstädter, S., Schneider, C., Miller, P., Palmer, C., Glowacki, B., Climente-Alarcon, V., Smara, A., Tomkow, L., Teigelkötter, J., Stock, A., Büdel, J., Jeunesse, L., Staempfli, M., Delautre, G., Zimmermann, B., van der Woude, R., Perez, A., Samoilenkov, S., Molodyk, A., Pardo, E., Kapolka, M., Li, S., and Dadhich, A.: REBCO coated conductors are ready to take off. In SuperFOx 2020, Santa Margherita Ligure (Italy).

#### **11.) 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: 20771 €  
Podpora medzinárodnej spolupráce z národných zdrojov: 4816 €

##### Dosiahnuté výsledky:

Ries, R., Seiler, E., Gömöry, F., Medvids, A., Pira, C., and Malyshev, O.B.: Superconducting properties and surface roughness of thin Nb samples fabricated for SRF applications, J. Phys.: Conf. Ser. 1559 (2020) 012040.

#### **Programy: JRP**

#### **12.)** (*An individual stimulating system with 3D nano-structure carbon/graphene based transducer and wireless heater for automated tiny insects behavior monitoring*)

**Zodpovedný riešiteľ:** Robert Andok  
**Zodpovedný riešiteľ v organizácii SAV:** Gabriel Vanko  
**Trvanie projektu:** 1.1.2018 / 31.12.2020  
**Evidenčné číslo projektu:** SAS-MOST JRP 2017/1  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** Ústav informatiky SAV  
**Počet spoluriešiteľských inštitúcií:** 1 - Taiwan: 1  
**Čerpané financie:** -

##### Dosiahnuté výsledky:

## Domáce projekty

### Programy: VEGA

#### 1.) Štúdium okrajových stavov a Landauových hladín v elektronickom umelom graféne (*Edge states and Landau levels in electronic artificial graphene*)

**Zodpovedný riešiteľ:** Juraj Feilhauer  
**Trvanie projektu:** 1.1.2018 / 31.12.2020  
**Evidenčné číslo projektu:** 2/0162/18  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** VEGA: 3197 €

##### Dosiahnuté výsledky:

Feilhauer, J., Schumer, A., Doppler, J., Mailybaev, A.A., Böhm, J., Kuhl, U., Moiseyev, N., and Rotter, S.: Encircling exceptional points as a non-Hermitian extension of rapid adiabatic passage, Phys. Rev. A 102 (2020) 040201.

Feilhauer, J., Saha S., Tóvik, J., Zelent M., Heyderman L. J., and Mruczkiewicz, M.: Controlled motion of skyrmions in a magnetic antidot lattice, Phys. Rev. B 102 (2020) 184425.

#### 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: 8979 €

##### Dosiahnuté výsledky:

Egyenes-Pörsök, F., Guemann, F., Hušková, K., Dobročka, E., Sobota, M., Mikolášek, M., Fröhlich, K., and Ľapajna, M.: Growth of  $\alpha$ - and  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> epitaxial layers on sapphire substrates using liquid-injection MOCVD, Semicond. Sci Technol. 35 (2020) 115002.

#### 3.) Návrh a príprava spojov vysokoteplotných supravodivých pások bezolovnatými spájkami a charakterizácia ich vlastností (*Design and preparation of high-temperature superconducting tapes joints using lead-free solders and characterization of their properties*)

**Zodpovedný riešiteľ:** Fedor Gömöry  
**Trvanie projektu:** 1.1.2017 / 31.12.2020  
**Evidenčné číslo projektu:** 1/0151/17

**Organizácia je** nie  
**koordinátorom projektu:**  
**Koordinátor:** Materiálovotechnologická fakulta STU v Trnave  
**Počet spoluriešiteľských** 0  
**inštitúcií:**  
**Čerpané financie:** VEGA: 7844 €

Dosiahnuté výsledky:

Wang, Y., Weng, F., Li, J., Šouc, J., Gömöry, F., Zou, S., Zhang, M., and Yuan, W.: No-insulation high-temperature superconductor winding technique for electrical aircraft propulsion, IEEE Trans. Transport. Electrification. 6 (2020) 1613 – 1624.

Pekarčíková, M., Mišík, J., Drienovsky, M., Krajčovič, J., Vojenčiak, M., Búran, M., Mošat', M., Húlan, T., Skarba, M., Cuninková, E., and Gömöry, F.: Composite heat sink material for superconducting tape in fault current limiter applications, Materials 13 (2020) 1832.

**4.) Opracovanie povrchu polovodiča ako cesta k novým III-As a III-N elektronickým súčiastkám** (*Surface processing of semiconductors as the way towards new III-As and III-N electronic devices*)

**Zodpovedný riešiteľ:** Dagmar Gregušová  
**Trvanie projektu:** 1.1.2017 / 31.12.2020  
**Evidenčné číslo projektu:** 2/0109/17  
**Organizácia je** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských** 0  
**inštitúcií:**  
**Čerpané financie:** VEGA: 12912 €

Dosiahnuté výsledky:

Pohorelec, O., Ťapajna, M., Gregušová, D., Gucmann, F., Hasenöhrl, S., Haščík, Š., Stoklas, R., Seifertová, A., Pécz, B., Tóth, L., and Kuzmík, J.: Investigation of interfaces and threshold voltage instabilities in normally-off MOS-gated InGaN/AlGaIn/GaN HEMTs, Applied Surface Science 528 (2020) 146824.

**5.) Pokročilé monochromátory s pridanou funkčnosťou úpravy zväzku pre röntgenovú metrológiu a röntgenové zobrazovanie** (*Advanced monochromators with added functionality of the beam conditioning for X-ray metrology and X-ray imaging*)

**Zodpovedný riešiteľ:** Matej Jergel  
**Zodpovedný riešiteľ v** Zdenko Zápražný  
**organizácii SAV:**  
**Trvanie projektu:** 1.1.2018 / 31.12.2020  
**Evidenčné číslo projektu:** 2/0092/18  
**Organizácia je** nie  
**koordinátorom projektu:**  
**Koordinátor:** Fyzikálny ústav SAV  
**Počet spoluriešiteľských** 0  
**inštitúcií:**  
**Čerpané financie:** VEGA: 5372 €

Dosiahnuté výsledky:

Zaťko, B., Šagátová, A., Zápražný, Z., Boháček, P., Sekáčová, M., Kováčová, E., Žemlička, J., Jakúbek, J., Korytár, D., Gál, N., and Nečas, V.: Study of the contrast resolution of Timepix detector with a semi-insulating GaAs sensor, J. Instrument. 15 (2020) C04004.

Šagátová, A., Zaťko, B., Nečas, V., and Fülöp, M.: Radiation hardness limits in gamma spectrometry of semi-insulating GaAs detectors irradiated by 5MeV electrons, J. Instrument. 15 (2020) C01024.

Hagara, J., Mrkvíkova, N., Nádaždy, P., Hodas, M., Bodík, M., Jergel, M., Majková, E., Tokár, K., Hutár, P., Sojková, M., Chumakov, A., Konovalov, O., Pandit, P., Roth, S., Hinderhofer, A., Hulman, M., Šiffalovič, P., and Schreiber, F.: Reorientation of  $\pi$ -conjugated molecules on few-layer MoS<sub>2</sub> films, Phys. Chem. Chem. Phys. 22 (2020) 3097-3104.

Ferrari, C., Beretta, S., Rotunno, E., Korytár, D., and Zápražný, Z.: Compressive strain formation in surface-damaged crystals, J. Applied Crystall. 53 (2020) 629-634.

**6.) Pokrokový MgB<sub>2</sub> supravodič bez difúznej bariéry** (*Advanced MgB<sub>2</sub> superconductor without diffusion barrier*)

<b>Zodpovedný riešiteľ:</b>	Pavol Kováč
<b>Trvanie projektu:</b>	1.1.2020 / 31.12.2021
<b>Evidenčné číslo projektu:</b>	2/0140/19
<b>Organizácia je koordinátorom projektu:</b>	áno
<b>Koordinátor:</b>	Elektrotechnický ústav SAV
<b>Počet spoluriešiteľských inštitúcií:</b>	0
<b>Čerpané financie:</b>	VEGA: 2308 €

Dosiahnuté výsledky:

Kováč, P., Kopera, L., Hain, M., Martínez, E., Kováč, J., Melišek, T., Berek, D., and Hušek, I.: MgB<sub>2</sub> cables made of thin wires manufactured by IMD process, Supercond. Sci Technol. 33 (2020) 085004.

Kováč, P., Hušek, I., Pérez, N., Rosová, A., Berek, D., Gelušiaková, B., Kopera, L., Melišek, T., and Nielsch, K.: Structure and properties of barrier-free MgB<sub>2</sub> composite wires made by internal magnesium diffusion process, J. Alloys Comp. 829 (2020) 154543.

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

<b>Zodpovedný riešiteľ:</b>	Ján Kuzmík
<b>Trvanie projektu:</b>	1.1.2018 / 31.12.2021
<b>Evidenčné číslo projektu:</b>	2/0012/18
<b>Organizácia je koordinátorom projektu:</b>	áno
<b>Koordinátor:</b>	Elektrotechnický ústav SAV
<b>Počet spoluriešiteľských</b>	0

**inštitúcií:**

**Čerpané financie:** VEGA: 9408 €

Dosiahnuté výsledky:

Pohorelec, O., Ťapajna, M., Gregušová, D., Gučmann, F., Hasenöhrl, S., Haščík, Š., Stoklas, R., Seifertová, A., Pécz, B., Tóth, L., and Kuzmík, J.: Investigation of interfaces and threshold voltage instabilities in normally-off MOS-gated InGaN/AlGaIn/GaN HEMTs, *Applied Surface Sci* 528 (2020) 146824.

Šichman, P., Hasenöhrl, S., Stoklas, R., Priesol, J., Dobročka, E., Haščík, Š., Gučmann, F., Vincze, A., Chvála, A., Marek, J., Šatka, A., and Kuzmík, J.: Semi-insulating GaN for vertical structures: role of substrate selection and growth pressure, *Mater. Sci Semicond. Process.* 118 (2020) 105203.

Hasenöhrl, S., Dobročka, E., Stoklas, R., Gučmann, F., Rosová, A., Kuzmík, J.: Growth and Properties of N-polar InN/InAlN Heterostructures, *Phys. Stat. sol (a)* 217 (2020) 2000197.

**8.) Moderné nanoštruktúry pripravené sofistikovanou MOVPE technológiou** (*Advanced nanostructures prepared by sophisticated MOVPE technology*)

**Zodpovedný riešiteľ:** Jozef Novák

**Trvanie projektu:** 1.1.2017 / 31.12.2020

**Evidenčné číslo projektu:** 2/0104/17

**Organizácia je** áno

**koordinátorom projektu:**

**Koordinátor:** Elektrotechnický ústav SAV

**Počet spoluriešiteľských** 0

**inštitúcií:**

**Čerpané financie:** VEGA: 10603 €

Dosiahnuté výsledky:

Lettrichová, I., Pudiš, D., Laurenčíková, A., Novák, J., Kuzma, A., Goraus, M., Gaso, P., and Jandura, D.: Near and far-field analysis of Fresnel structures applied in the LED surface, *Applied Surface Sci* 531 (2020) 147300.

Novák, J., Eliáš, P., Hasenöhrl, S., Laurenčíková, A., Kováč, J.jr., Urbancová, P., and Pudiš, D.: Twinned nanoparticle structures for surface enhanced Raman scattering, *Applied Surface Sci* 528 (2020) 146548.

**9.) Fyzikálne problémy štruktúr MISFET a MISHFET na báze III-V a III-N polovodičov** (*Physical problems of MISFET and MISHFET structures based on III-V and III-N semiconductors*)

**Zodpovedný riešiteľ:** Jozef Osvald

**Trvanie projektu:** 1.1.2017 / 31.12.2020

**Evidenčné číslo projektu:** 2/0112/17

**Organizácia je** áno

**koordinátorom projektu:**

**Koordinátor:** Elektrotechnický ústav SAV

**Počet spoluriešiteľských** 0

**inštitúcií:**

**Čerpané financie:** VEGA: 2565 €

Dosiahnuté výsledky:

Osvald, J., Hrubčín, L., and Zaťko, B.: Schottky barrier height inhomogeneity in 4H-SiC surface barrier detectors, *Applied Surface Sci* 533 (2020) 147389.

**10.) 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: 6661 €

Dosiahnuté výsledky:

**11.) Magnetická interakcia supravodivých a feromagnetických vrstiev: modelovanie, charakterizácia a aplikácie** (*Magnetic interaction of superconducting and ferromagnetic layers: modelling, characterization and applications*)

**Zodpovedný riešiteľ:** Eugen Seiler  
**Trvanie projektu:** 1.1.2018 / 31.12.2020  
**Evidenčné číslo projektu:** 2/0097/18  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** VEGA: 24372 €

Dosiahnuté výsledky:

Dadhich, A., Pardo, E., and Kapolka, M.: Time constant of the transverse-field demagnetization of superconducting stacks of tapes, *Supercond. Sci Technol.* 33 (2020) 065003.

Ghabeli, A. and Pardo, E.: Modeling of airgap influence on DC voltage generation in a dynamo-type flux pump, *Supercond. Sci Technol.* 33 (2020) 035008.

Kapolka, M., Pardo, E., Grilli, F., Baskys, A., Climente-Alarcon, V., Dadhich, A., and Glowacki, B.A.: Cross-field demagnetization of stacks of tapes: 3D modeling and measurements, *Supercond. Sci Technol.* 33 (2020) 044019.

Li, S., Kováč, J., and Pardo, E.: Coupling loss at the end connections of REBCO stacks: 2D modelling and measurement, *Supercond. Sci Technol.* 33 (2020) 075014.

Ries, R., Seiler, E., Gömöry, F., Medvids, A., Pira, C., and Malyshev, O.B.: Superconducting properties and surface roughness of thin Nb samples fabricated for SRF applications, *J. Phys.: Conf.*

Ser. 1559 (2020) 012040.

Dadhich, A. and Pardo, E.: Modeling cross-field demagnetization of superconducting stacks and bulks for up to 100 tapes and 2 million cycles, *Sci Rep.* 10 (2020) 19265.

Ainslie, M., Grilli, F., Queval, L., Pardo, E., Perez Mendez, F., Mataira, R., Morandi, A., Ghabeli, A., Bumby, C., and Brambilla, R.: A new benchmark numerical model: the high-T<sub>c</sub> superconducting dynamo. In *Applied Supercond. Conf. 2020 Virtual Conf.* (organized in USA). Invited.

## **12.) 2D materiály a iónové kvapaliny pre využitie v mikroelektronike a senzorike (2D materials and ionic liquids in microelectronics and sensors)**

**Zodpovedný riešiteľ:** Michaela Sojková  
**Trvanie projektu:** 1.1.2017 / 31.12.2020  
**Evidenčné číslo projektu:** 2/0149/17  
**Organizácia je** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** VEGA: 11801 €

### Dosiahnuté výsledky:

Marcin, M., Pribulová, Z., Kačmarčík, J., Verchenko, V.Yu., Shevelkov, A.V., Cambel, V., Šoltýs, J., and Samuely, P.: Local magnetometry of superconducting Mo<sub>8</sub>Ga<sub>4</sub>1 and Mo<sub>7</sub>VGa<sub>4</sub>1: vortex pinning study, *Acta Phys. Polonica A* 137 (2020) 794-796.

Hutár, P., Sojková, M., Kundrata, I., Vegso, K., Shaji, A., Nádaždy, P., Pribusová Slušná, L., Majková, E., Šiffalovic, P., and Hulman, M.: Correlation between the crystalline phase of molybdenum oxide and horizontal alignment in thin MoS<sub>2</sub> films, *J. Phys. Chem. C* 124 (2020) 19362–19367.

Hagara, J., Mrkývkova, N., Nádaždy, P., Hodas, M., Bodík, M., Jergel, M., Majková, E., Tokár, K., Hutár, P., Sojková, M., Chumakov, A., Konovalov, O., Pandit, P., Roth, S., Hinderhofer, A., Hulman, M., Šiffalovič, P., and Schreiber, F.: Reorientation of  $\pi$ -conjugated molecules on few-layer MoS<sub>2</sub> films, *Phys. Chem. Chem. Phys.* 22 (2020) 3097-3104.

Hagara, J., Mrkývkova, N., Feriancová, L., Putala, M., Nádaždy, P., Hodas, M., Shaji, A., Nádaždy, V., Huss-Hansen, M.K., Knaapila, M., Hagenlocher, J., Russegger, N., Zwadlo, M., Merten, L., Sojková, M., Hulman, M., Vlad, A., Pandit, P., Roth, S., Jergel, M., Majková, E., Hinderhofer, A., Šiffalovič, P., and Schreiber, F.: Novel highly substituted thiophene-based n-type organic semiconductor: structural study, optical anisotropy and molecular control, *CrystEngComm* 22 (2020) 7095-7103.

## **13.) 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: 3420 €

Dosiahnuté výsledky:

**14.) 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: 15136 €

Dosiahnuté výsledky:

Šoltýs, J., Feilhauer, J., Vetrova, J., Tóvik, J., Bublikov, K., Ščepka, T., Fedor, J., Dérier, J., and Cambel, V.: Magnetic-field imaging using vortex-core MFM tip, *Applied Phys. Lett.* 116 (2020) 242406.

**15.) 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: 4398 €

Dosiahnuté výsledky:

Španková, M., Dobročka, E., Štrbík, V., Chromik, Š., Gál, N., Nedelko, N., Ślowska-Waniewska, A., and Gierlowski, P.: Structural characterization of epitaxial LSMO thin films grown on LSAT substrates, *Acta Phys. Polonica A* 137 (2020) 744-746.

**16.) 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** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských** 0  
**inštitúcií:**  
**Čerpané financie:** VEGA: 5116 €

Dosiahnuté výsledky:

Feilhauer, J., Saha S., Tóbiš, J., Zelent M., Heyderman L. J., and Mruczkiewicz, M.: Controlled motion of skyrmions in a magnetic antidot lattice, Phys. Rev. B 102 (2020) 184425.

**17.) 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** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských** 1 - Slovensko: 1  
**inštitúcií:**  
**Čerpané financie:** VEGA: 7330 €

Dosiahnuté výsledky:

Osvald, J., Hrubčín, L., and Zaťko, B.: Schottky barrier height inhomogeneity in 4H-SiC surface barrier detectors, Applied Surface Sci 533 (2020) 147389.

Zaťko, B., Šagátová, A., Zápražný, Z., Boháček, P., Sekáčová, M., Kováčová, E., Žemlička, J., Jakúbek, J., Korytár, D., Gál, N., and Nečas, V.: Study of the contrast resolution of Timepix detector with a semi-insulating GaAs sensor, J. Instrument. 15 (2020) C04004.

Šagátová, A., Zaťko, B., Nečas, V., and Fülöp, M.: Radiation hardness limits in gamma spectrometry of semi-insulating GaAs detectors irradiated by 5MeV electrons, J. Instrument. 15 (2020) C01024.

**Programy: APVV**

**18.) Skyrmióny vo feromagnetických nanoobjektoch** (*Skyrmions in ferromagnetic nanoobjects*)

**Zodpovedný riešiteľ:** Vladimír Cambel  
**Trvanie projektu:** 1.7.2017 / 31.12.2020  
**Evidenčné číslo projektu:** 16-0068  
**Organizácia je** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských** 2 - Slovensko: 2  
**inštitúcií:**  
**Čerpané financie:** APVV: 40000 €

Dosiahnuté výsledky:

Szulc, K., Graczyk, P., Mruczkiewicz, M., Gubbiotti, G., and Krawczyk, M.: Spin-wave diode and circulator based on unidirectional coupling, *Phys. Rev. Applied* 14 (2020) 034063.

Šoltýs, J., Feilhauer, J., Vetrova, J., Tóbiš, J., Bublikov, K., Ščepka, T., Fedor, J., Dérier, J., and Cambel, V.: Magnetic-field imaging using vortex-core MFM tip, *Applied Phys. Lett.* 116 (2020) 242406.

Feilhauer, J., Saha S., Tóbiš, J., Zelent M., Heyderman L. J., and Mruczkiewicz, M.: Controlled motion of skyrmions in a magnetic antidot lattice, *Phys. Rev. B* 102 (2020) 184425.

**19.) 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** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 75472 €

Dosiahnuté výsledky:

Kujovič, T. and Gömöry, F.: Impact of local geometrical irregularities on critical currents of REBCO tapes in round cables, *Supercond. Sci Technol.* 33 (2020) 115008.

Dilna, N., Fečkan, M., and Solovyov, M.: D-stability of the initial value problem for symmetric nonlinear functional differential equations, *Symmetry* 12 (2020) Iss. 1761, p. 1-19

**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** áno  
**koordinátorom projektu:**  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 2 - Slovensko: 2  
**Čerpané financie:** APVV: 19735 €

Dosiahnuté výsledky:

Hutár, P., Sojková, M., Kundrata, I., Vegso, K., Shaji, A., Nádaždy, P., Pribusová Slušná, L., Majková, E., Siffalovic, P., and Hulman, M.: Correlation between the crystalline phase of molybdenum oxide and horizontal alignment in thin MoS<sub>2</sub> films, *J. Phys. Chem. C* 124 (2020) 19362–19367.

Hagara, J., Mrkývková, N., Feriancová, L., Putala, M., Nádaždy, P., Hodas, M., Shaji, A., Nádaždy, V., Huss-Hansen, M.K., Knaapila, M., Hagenlocher, J., Russegger, N., Zwadlo, M., Merten, L., Sojková, M., Hulman, M., Vlad, A., Pandit, P., Roth, S., Jergel, M., Majková, E., Hinderhofer, A., Šiffalovič, P., and Schreiber, F.: Novel highly substituted thiophene-based n-type organic semiconductor: structural study, optical anisotropy and molecular control, CrystEngComm 22 (2020) 7095-7103.

**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 koordinátorom projektu:** nie  
**Koordinátor:** FMFI UK  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 12000 €

Dosiahnuté výsledky:

**22.) Modifikácia YBCO tenkovrstvových štruktúr nízkoenergetickými elektrónmi pre supravodivú elektroniku** (*Modification of YBCO thin film structures using low energy electron beam processing for superconducting electronics*)

**Zodpovedný riešiteľ:** Štefan Chromik  
**Trvanie projektu:** 1.7.2017 / 31.12.2020  
**Evidenčné číslo projektu:** 16-0315  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 1 - Slovensko: 1  
**Čerpané financie:** APVV: 40000 €

Dosiahnuté výsledky:

Španková, M., Dobročka, E., Štrbík, V., Chromik, Š., Gál, N., Nedelko, N., Ślawska-Waniewska, A., and Gierlowski, P.: Structural characterization of epitaxial LSMO thin films grown on LSAT substrates, Acta Phys. Polonica A 137 (2020) 744-746.

**23.) Supravodivé vinutia z homogénnych MgB<sub>2</sub> drôtov s trubičkovými vláknami** (*Superconducting coils made of uniform MgB<sub>2</sub> wires with tubular filaments*)

**Zodpovedný riešiteľ:** Pavol Kováč  
**Trvanie projektu:** 1.7.2019 / 30.11.2021  
**Evidenčné číslo projektu:** 18-0271  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Elektrotechnický ústav SAV

**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 53511 €

Dosiahnuté výsledky:

Kováč, P., Kopera, L., Hain, M., Martínez, E., Kováč, J., Melišek, T., Berek, D., and Hušek, I.: MgB<sub>2</sub> cables made of thin wires manufactured by IMD process, Supercond. Sci Technol. 33 (2020) 085004.

Kováč, P., Hušek, I., Pérez, N., Rosová, A., Berek, D., Gelušiaková, B., Kopera, L., Melišek, T., and Nielsch, K.: Structure and properties of barrier-free MgB<sub>2</sub> composite wires made by internal magnesium diffusion process, J. Alloys Comp. 829 (2020) 154543.

**24.) 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 koordinátorom projektu:** áno  
**Koordinátor:** Elektrotechnický ústav SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 58645 €

Dosiahnuté výsledky:

Šichman, P., Hasenöhr, S., Stoklas, R., Priesol, J., Dobročka, E., Haščík, Š., Gucmann, F., Vincze, A., Chvála, A., Marek, J., Šatka, A., and Kuzmík, J.: Semi-insulating GaN for vertical structures: role of substrate selection and growth pressure, Mater. Sci Semicond. Process. 118 (2020) 105203.

**25.) 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 organizácii SAV:** Martin Hulman  
**Trvanie projektu:** 1.8.2018 / 30.6.2022  
**Evidenčné číslo projektu:** 17-0352  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** Centrum pre využitie pokročilých materiálov SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 6264 €

Dosiahnuté výsledky:

Hutár, P., Sojková, M., Kundrata, I., Vegso, K., Shaji, A., Nádaždy, P., Pribusová Slušná, L., Majková, E., Siffalovic, P., and Hulman, M.: Correlation between the crystalline phase of molybdenum oxide and horizontal alignment in thin MoS<sub>2</sub> films, J. Phys. Chem. C 124 (2020) 19362–19367.

Hagara, J., Mrkývková, N., Nádaždy, P., Hodas, M., Bodík, M., Jergel, M., Majková, E., Tokár, K., Hutár, P., Sojková, M., Chumakov, A., Konovalov, O., Pandit, P., Roth, S., Hinderhofer, A., Hulman, M., Šiffalovič, P., and Schreiber, F.: Reorientation of  $\pi$ -conjugated molecules on few-layer MoS<sub>2</sub> films, *Phys. Chem. Chem. Phys.* 22 (2020) 3097-3104.

Hagara, J., Mrkývková, N., Feriancová, L., Putala, M., Nádaždy, P., Hodas, M., Shaji, A., Nádaždy, V., Huss-Hansen, M.K., Knaapila, M., Hagenlocher, J., Russegger, N., Zwadlo, M., Merten, L., Sojková, M., Hulman, M., Vlad, A., Pandit, P., Roth, S., Jergel, M., Majková, E., Hinderhofer, A., Šiffalovič, P., and Schreiber, F.: Novel highly substituted thiophene-based n-type organic semiconductor: structural study, optical anisotropy and molecular control, *CrystEngComm* 22 (2020) 7095-7103.

## **26.) 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** 0  
**inštitúcií:**  
**Čerpané financie:** APVV: 14531 €

### Dosiahnuté výsledky:

Szulc, K., Graczyk, P., Mruczkiewicz, M., Gubbiotti, G., and Krawczyk, M.: Spin-wave diode and circulator based on unidirectional coupling, *Phys. Rev. Applied* 14 (2020) 034063.

Feilhauer, J., Saha S., Tóvik, J., Zelent M., Heyderman L. J., and Mruczkiewicz, M.: Controlled motion of skyrmions in a magnetic antidot lattice, *Phys. Rev. B* 102 (2020) 184425.

## **27.) Fotonické nanoštruktúry pripravené laserovou 3D litografiou pre biosenzory** (*Photonic nanostructures prepared by 3D laser lithography for biosensing*)

**Zodpovedný riešiteľ:** Jozef Novák  
**Trvanie projektu:** 1.7.2017 / 31.12.2020  
**Evidenčné číslo projektu:** 16-0129  
**Organizácia je** nie  
**koordinátorom projektu:**  
**Koordinátor:** Žilinská univerzita  
**Počet spoluriešiteľských** 0  
**inštitúcií:**  
**Čerpané financie:** APVV: 22687 €

### Dosiahnuté výsledky:

## **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: 39426 €

Dosiahnuté výsledky:

Dadhich, A. and Pardo, E.: Modeling cross-field demagnetization of superconducting stacks and bulks for up to 100 tapes and 2 million cycles, Sci Rep. 10 (2020) 19265.

**29.) Pokročilé materiály a štruktúry pre perspektívne aplikácie v elektrotechnike, elektronike a iných oblastiach na báze feritov s rozmermi častíc v oblasti mikrometrov a nanometrov**  
*(Advanced materials and smart structures for progressive applications in electrical engineering, electronics and other fields based on micro- and nano-sized ferrite particles)*

**Zodpovedný riešiteľ:** Mykola Soloviov  
**Trvanie projektu:** 1.7.2016 / 30.6.2020  
**Evidenčné číslo projektu:** 15-0257  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** FEI STU  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 3700 €

Dosiahnuté výsledky:

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

**Zodpovedný riešiteľ:** Milan Ľapajna  
**Zodpovedný riešiteľ v organizácii SAV:** Martin Hulman  
**Trvanie projektu:** 1.8.2018 / 30.6.2022  
**Evidenčné číslo projektu:** 17-0560  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** Centrum pre využitie pokročilých materiálov SAV  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 15184 €

Dosiahnuté výsledky:

Hutár, P., Sojková, M., Kundrata, I., Vegso, K., Shaji, A., Nádaždy, P., Pribusová Slušná, L., Majková, E., Siffalovic, P., and Hulman, M.: Correlation between the crystalline phase of

molybdenum oxide and horizontal alignment in thin MoS<sub>2</sub> films, J. Phys. Chem. C 124 (2020) 19362–19367.

Hagara, J., Mrkývková, N., Feriancová, L., Putala, M., Nádaždy, P., Hodas, M., Shaji, A., Nádaždy, V., Huss-Hansen, M.K., Knaapila, M., Hagenlocher, J., Russegger, N., Zwadlo, M., Merten, L., Sojková, M., Hulman, M., Vlad, A., Pandit, P., Roth, S., Jergel, M., Majková, E., Hinderhofer, A., Šiffalovič, P., and Schreiber, F.: Novel highly substituted thiophene-based n-type organic semiconductor: structural study, optical anisotropy and molecular control, CrystEngComm 22 (2020) 7095-7103.

**31.) 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 koordinátorom projektu:** nie  
**Koordinátor:** Ústav jadrového a fyzikálneho inžinierstva FEI STU  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 28651 €

Dosiahnuté výsledky:

Zaťko, B., Šagátová, A., Zápražný, Z., Boháček, P., Sekáčová, M., Kováčová, E., Žemlička, J., Jakúbek, J., Korytár, D., Gál, N., and Nečas, V.: Study of the contrast resolution of Timepix detector with a semi-insulating GaAs sensor, J. Instrument. 15 (2020) C04004.

Šagátová, A., Zaťko, B., Nečas, V., and Fülöp, M.: Radiation hardness limits in gamma spectrometry of semi-insulating GaAs detectors irradiated by 5MeV electrons, J. Instrument. 15 (2020) C01024.

Sedlačková, K., Zaťko, B., Pavlovič, M., Šagátová, A., and Nečas, V.: Effects of electron irradiation on spectrometric properties of Schottky barrier CdTe radiation detectors, Inter. J. Modern Phys.: Conf. Ser. 50 (2020) 2060017.

**32.) 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: 47866 €

Dosiahnuté výsledky:

Zaťko, B., Šagátová, A., Zápražný, Z., Boháček, P., Sekáčová, M., Kováčová, E., Žemlička, J., Jakúbek, J., Korytár, D., Gál, N., and Nečas, V.: Study of the contrast resolution of Timepix detector with a semi-insulating GaAs sensor, J. Instrument. 15 (2020) C04004.

Šagátová, A., Zaťko, B., Nečas, V., and Fülöp, M.: Radiation hardness limits in gamma spectrometry of semi-insulating GaAs detectors irradiated by 5MeV electrons, J. Instrument. 15 (2020) C01024.

Sedlačková, K., Zaťko, B., Pavlovič, M., Šagátová, A., and Nečas, V.: Effects of electron irradiation on spectrometric properties of Schottky barrier CdTe radiation detectors, Inter. J. Modern Phys.: Conf. Ser. 50 (2020) 2060017.

## **Programy: Štrukturálne fondy EÚ Výskum a inovácie**

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

<b>Zodpovedný riešiteľ:</b>	Eva Majková
<b>Zodpovedný riešiteľ v organizácii SAV:</b>	Milan Ľapajna
<b>Trvanie projektu:</b>	1.7.2019 / 30.6.2023
<b>Evidenčné číslo projektu:</b>	313021T081
<b>Organizácia je koordinátorom projektu:</b>	nie
<b>Koordinátor:</b>	Centrum pre využitie pokročilých materiálov SAV
<b>Počet spoluriešiteľských inštitúcií:</b>	6 - Slovensko: 6
<b>Čerpané financie:</b>	EÚ: 18920 € SAV: 18920 €

Dosiahnuté výsledky:

## **Programy: MoRePro**

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

<b>Zodpovedný riešiteľ:</b>	Marian Varga
<b>Trvanie projektu:</b>	1.8.2020 / 31.7.2024
<b>Evidenčné číslo projektu:</b>	19MRP0010
<b>Organizácia je koordinátorom projektu:</b>	áno
<b>Koordinátor:</b>	Elektrotechnický ústav SAV
<b>Počet spoluriešiteľských inštitúcií:</b>	0
<b>Čerpané financie:</b>	SAV: 10231 €

## Príloha C

### Publikačná činnosť organizácie (generovaná z ARL)

#### ABC Kapitoly vo vedeckých monografiách vydané v zahraničných vydavateľstvách

- ABC01      ŤAPAJNA, Milan - KOLLER, C. Reliability Issues in GaN electronic devices. In Nitride semiconductor technology : power electronics and optoelectronic devices. - Weinheim : Wiley-VCH, 2020, p. 199-253. ISBN 978-3-527-34710-0.

#### ADCA Vedecké práce v zahraničných karentovaných časopisoch – impaktovaných

- ADCA01      ADIKIMENAKIS, A.\*\* - CHATZOPOULOU, P. - DIMITRAKOPULOS, G.P. - KEHAGIAS, Th. - TSAGARAKI, K. - ANDROULIDAKI, M. - DOUNDOULAKIS, G. - KUZMÍK, Ján - GEORGAKILAS, A. Correlation of threading dislocations with the electron concentration and mobility in InN heteroepitaxial layers grown by MBE. In ECS Journal of Solid State Science and Technology, 2020, vol. 9, no. 015006. (2019: 2.142 - IF, Q3 - JCR, 0.521 - SJR, Q2 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 2162-8769. Dostupné na: <https://doi.org/10.1149/2.0212001JSS>
- ADCA02      AINSLIE, M.D.\*\* - GRILLI, F. - QUEVAL, L. - PARDO, Enric - PEREZ-MENDEZ, F. - MATAIRA, R. - MORANDI, A. - GHABELI, Asef - BUMBY, C. - BRAMBILLA, R. A new benchmark problem for electromagnetic modelling of superconductors: the high-Tc superconducting dynamo. In Superconductor Science and Technology, 2020, vol. 33, no. 105009. (2019: 3.067 - IF, Q2 - JCR, 0.991 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/abae04>
- ADCA03      ALPERN, H. - PERIYASAMY, M. - TANNOUS, J. - JUNG, G. - ZAYTSEVA, I. - ROSOVÁ, Alica - CHROMIK, Štefan - ŠTRBÍK, Vladimír - TALACKO, Marcel - YOCHELIS, S. - YACOBY, Y. - MILLO, O.\*\* - PALTIEL, Y.\*\*. Increasing the transition temperature of high-TC superconductor thin films by organic linking of gold nanoparticles. In Journal of Superconductivity and Novel Magnetism, 2020, vol. 33, p. 1941-1948. (2019: 1.244 - IF, Q4 - JCR, 0.293 - SJR, Q3 - SJR, karentované - CCC). (2020 - Current Contents, WOS, SCOPUS). ISSN 1557-1939. Dostupné na: <https://doi.org/10.1007/s10948-020-05450-0>
- ADCA04      BENKEL, T. - LAO, M. - LIU, Y. - PARDO, Enric - WOLFTÄDLER, S. - REIS, T. - GRILLI, F.\*\*. T–A-formulation to model electrical machines with HTS coated conductor coils. In IEEE Transactions on Applied Superconductivity, 2020, vol. 30, no. 5205807. (2019: 1.692 - IF, Q3 - JCR, 0.419 - SJR, Q2 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1051-8223. Dostupné na: <https://doi.org/10.1109/TASC.2020.2968950> (H2020 ASuMED)
- ADCA05      CENTALA, G. - SOKOLOVSKYY, M.L. - DAVIES, C.S. - MRUCZKIEWICZ, Michał - MAMICA, S. - RYCHŁY, J. - KLOS, J.W.\*\* - KRUGLYAK, V.V. - KRAWCZYK, M. Influence of nonmagnetic dielectric spacers on the spin-wave response of one-dimensional planar magnonic crystals. In Physical Review B, 2019, vol. 100, p. 224428. (2018: 3.736 - IF, Q1 - JCR, 1.502 - SJR, Q1 - SJR, karentované - CCC). (2019 - Current Contents, WOS, SCOPUS). ISSN 1550-235X. Dostupné na: <https://doi.org/10.1103/PhysRevB.100.224428>
- ADCA06      DADHICH, Anang - PARDO, Enric\*\*. Modeling cross-field demagnetization of superconducting stacks and bulks for up to 100 tapes and 2 million cycles. In Scientific Reports, 2020, vol. 10, no. 19265. (2019: 3.998 - IF, Q1 - JCR, 1.341 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents, WOS, SCOPUS).

- ISSN 2045-2322. Dostupné na: <https://doi.org/10.1038/s41598-020-76221-z> (H2020 ASuMED. APVV 19-0536. VEGA 2/0097/18)
- ADCA07 DADHICH, Anang - PARDO, Enric\*\* - KAPOLKA, Milan. Time constant of the transverse-field demagnetization of superconducting stacks of tapes. In Superconductor Science and Technology, 2020, vol. 33, no. 6, no. 065003. (2019: 3.067 - IF, Q2 - JCR, 0.991 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/ab877b> (VEGA 2/0097/18. H2020 ASuMED)
- ADCA08 DILNA, Nataliya - FEČKAN, Michal\*\* - SOLOVYOV, Mykola. D-Stability of the Initial Value Problem for Symmetric Nonlinear Functional Differential Equations. In Symmetry-basel, 2020, vol. 12, no. 1761, p. 1-19. (2019: 2.645 - IF, Q2 - JCR, 0.365 - SJR, Q2 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 2073-8994. Dostupné na: <https://doi.org/10.3390/sym12111761>
- ADCA09 EGYENES-PÖRSÖK, Fridrich - GUCMANN, Filip - HUŠEKOVÁ, Kristína - DOBROČKA, Edmund - SOBOTA, M. - MIKOLÁŠEK, M. - FRÖHLICH, Karol - ĎAPAJNA, Milan\*\*. Growth of  $\alpha$ - and  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> epitaxial layers on sapphire substrates using liquid-injection MOCVD. In Semiconductor Science and Technology, 2020, vol. 35, no. 115002. (2019: 2.361 - IF, Q2 - JCR, 0.790 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0268-1242. Dostupné na: <https://doi.org/10.1088/1361-6641/ababdc>
- ADCA10 FARKAS, B. - KOLENČÍK, M. - HAIN, Miroslav - DOBROČKA, Edmund - KRATOŠOVÁ, G. - BUJDOŠ, M. - FENG, H. - DENG, Y. - YU, Q. - ILLA, R. - SUNIL, B.R. - KIM, H. - MATÚŠ, P. - URÍK, M.\*\*. Aspergillus niger decreases bioavailability of arsenic(V) via biotransformation of manganese oxide into biogenic oxalate minerals. In Journal of Fungi, 2020, vol. 6, no. 4, art. no. 270. (2019: 4.621 - IF, Q1 - JCR, 1.420 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 2309-608X. Dostupné na: <https://doi.org/10.3390/jof6040270>
- ADCA11 FEILHAUER, Juraj\*\* - SAHA, S. - TÓBIK, Jaroslav - ZEHETMAYER, M. - HEYDERMAN, L.J. - MRUCZKIEWICZ, Michal. Controlled motion of skyrmions in a magnetic antidot lattice. In Physical Review B, 2020, vol. 102, no. 184425. (2019: 3.575 - IF, Q2 - JCR, 1.811 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents, WOS, SCOPUS). ISSN 1550-235X. Dostupné na: <https://doi.org/10.1103/PhysRevB.102.184425>
- ADCA12 FEILHAUER, Juraj\*\* - SCHUMER, A. - DOPPLER, J. - MAILYBAEV, A.A. - BOHM, J. - KÜHL, Uwe - MOISEYEV, N. - ROTTER, S. Encircling exceptional points as a non-Hermitian extension of rapid adiabatic passage. In Physical Review A, 2020, vol. 102, no. 040201. (2019: 2.777 - IF, Q2 - JCR, 1.416 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1050-2947. Dostupné na: <https://doi.org/10.1103/PhysRevA.102.040201> (VEGA 2/0162/18)
- ADCA13 FERRARI, C.\*\* - BERETTA, S. - ROTUNNO, E. - KORYTÁR, Dušan - ZÁPRAŽNÝ, Zdenko. Compressive strain formation in surface-damaged crystals. In Journal of Applied Crystallography, 2020, vol. 53, part 3, p. 629-634. (2019: 2.995 - IF, Q2 - JCR, 1.525 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0021-8898. Dostupné na: <https://doi.org/10.1107/S1600576720003702> (VEGA 2/0092/18)
- ADCA14 GHABELI, Asef\*\* - PARDO, Enric\*\*. Modeling of airgap influence on DC voltage generation in a dynamo-type flux pump. In Superconductor Science and Technology, 2020, vol. 33, no. 035008. (2019: 3.067 - IF, Q2 - JCR, 0.991 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0953-2048. Dostupné na: <https://doi.org/10.1088/1361-6668/ab6958> (VEGA 2/0097/18)
- ADCA15 HAGARA, Jakub - MRKÝVKOVÁ, Nad'a, Tesařová\*\* - FERIANCOVÁ, Lucia - PUTALA, Martin - NÁDAŽDY, Peter - HODAS, Martin - SHAJI, Ashin -

- NÁDAŽDY, Vojtech - HUSS-HANSEN, M.K. - KNAAPILA, M. - HAGENLOCHER, J. - RUSSEGER, N. - ZWADLO, M. - MERTEN, L. - SOJKOVÁ, Michaela - HULMAN, Martin - VLAD, A. - PANDIT, P. - ROTH, S. - JERGEL, Matej - MAJKOVÁ, Eva - HINDERHOFER, A. - ŠIFFALOVÍČ, Peter - SCHREIBER, F. Novel highly substituted thiophene-based n-type organic semiconductor: structural study, optical anisotropy and molecular control. In CrystEngComm, 2020, vol. 22, no. 42, p. 7095-7103. (2019: 3.117 - IF, Q2 - JCR, 0.814 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1466-8033. Dostupné na: <https://doi.org/10.1039/d0ce01171a> (APVV-19-0365 TMD2DCOR. APVV 17-0560. VEGA 2/0092/18. VEGA 2/0149/17)
- ADCA16 HAGARA, Jakub - MRKÝVKOVÁ, Nad'a, Tesařová\*\* - NÁDAŽDY, Peter - HODAS, Martin - BODIK, Michal - JERGEL, Matej - MAJKOVÁ, Eva - TOKÁR, Kamil - HUTÁR, Peter - SOJKOVÁ, Michaela - CHUMAKOV, A. - KONOVALOV, O. - PANDIT, P. - ROTH, S. - HINDERHOFER, A. - HULMAN, Martin - ŠIFFALOVÍČ, Peter - SCHREIBER, F. Reorientation of  $\pi$ -conjugated molecules on few-layer MoS<sub>2</sub> films. In Physical Chemistry Chemical Physics, 2020, vol. 22, p. 3097-3104. (2019: 3.430 - IF, Q1 - JCR, 1.143 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1463-9076. Dostupné na: <https://doi.org/10.1039/c9cp05728e> (VEGA 2/0149/17. VEGA 2/0092/18)
- ADCA17 HANZEL, Ondrej\*\* - LENČEŠ, Zoltán - KIM, Young-Wook - FEDOR, Ján - ŠAJGALÍK, Pavol. Highly electrically and thermally conductive silicon carbide-graphene composites with yttria and scandia additives. In Journal of the European Ceramic Society, 2020, vol. 40, no. 2, p. 241-250. (2019: 4.495 - IF, Q1 - JCR, 1.164 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0955-2219. Dostupné na: <https://doi.org/10.1016/j.jeurceramsoc.2019.10.001>
- ADCA18 HASENÖHRL, Stanislav\*\* - DOBROČKA, Edmund - STOKLAS, Roman - GUCMANN, Filip - ROSOVÁ, Alica - KUZMÍK, Ján\*\*. Growth and properties of N-polar InN/InAlN heterostructures. In Physica Status Solidi A : applications and materials science, 2020, vol. 217, no. 2000197. (2019: 1.759 - IF, Q3 - JCR, 0.527 - SJR, Q2 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1862-6300. Dostupné na: <https://doi.org/10.1002/pssa.202000197> (VEGA 2/0012/18)
- ADCA19 HRONEC, M.\*\* - FULAJTÁROVÁ, K. - HORVÁTH, B. - LIPTAJ, T. - DOBROČKA, Edmund. A facile conversion of furfural to novel tetrahydrofurfuryl hemiacetals. In Applied Catalysis A: General, 2020, vol. 594, no. 117471. (2019: 5.006 - IF, Q1 - JCR, 1.163 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0926-860X. Dostupné na: <https://doi.org/10.1016/j.apcata.2020.117471>
- ADCA20 HURAN, Jozef\*\* - BALALYKIN, Nikolay - SASINKOVÁ, Vlasta - KLEINOVÁ, Angela - NOZDRIN, Mikhail A. - KOBZEV, Alexander P. - KOVÁČOVÁ, Eva. Very thin N-doped nanostructured carbon films on quartz and sapphire substrate: Photoelectron emission properties. In Thin Solid Films, 2020, vol. 709, art.no. 138200, [6] p. (2019: 2.030 - IF, Q3 - JCR, 0.513 - SJR, Q2 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 0040-6090. Dostupné na: <https://doi.org/10.1016/j.tsf.2020.138200>
- ADCA21 HUTÁR, Peter - SOJKOVÁ, Michaela\*\* - KUNDRATA, Ivan - VÉGSO, Karol - SHAJI, Ashin - NÁDAŽDY, Peter - PRIBUSOVÁ SLUŠNÁ, Lenka - MAJKOVÁ, Eva - ŠIFFALOVÍČ, Peter - HULMAN, Martin. Correlation between the crystalline phase of molybdenum oxide and horizontal alignment in thin MoS<sub>2</sub> films. In Journal of Physical Chemistry C, 2020, vol. 124, no. 35, p. 19362-19367. (2019: 4.189 - IF, Q2 - JCR, 1.477 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1932-7447. Dostupné na: <https://doi.org/10.1021/acs.jpcc.0c05336>
- ADCA22 CHAUHAN, Prerna\*\* - HASENÖHRL, Stanislav - MINJ, A. - CHAUVAT, M.-P. -

- RUTERANA, P. - KUZMÍK, Ján. Growth evolution of N-polar Indium-rich InAlN layer on c-sapphire via strain relaxation by ultrathin AlON interlayer. In Applied Surface Science, 2020, vol. 502, no. 144086. (2019: 6.182 - IF, Q1 - JCR, 1.230 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents, WOS, SCOPUS). ISSN 0169-4332. Dostupné na: <https://doi.org/10.1016/j.apsusc.2019.144086>
- ADCA23 CHAUHAN, Prerna\*\* - HASENÖHRL, Stanislav - VANČO, L. - ŠIFFALOVIČ, Peter - DOBROČKA, Edmund - MACHAJDÍK, Daniel - ROSOVÁ, Alica - GUCMANN, Filip - KOVÁČ, Jaroslav Jr. - MAŤKO, Igor - KUBALL, M. - KUZMÍK, Ján. A systematic study of MOCVD reactor conditions and Ga memory effect on properties of thick InAl(Ga)N layers: A complete depth-resolved investigation. In CrystEngComm, 2020, vol. 22, p. 130-141. (2019: 3.117 - IF, Q2 - JCR, 0.814 - SJR, Q1 - SJR, karentované - CCC). (2020 - Current Contents). ISSN 1466-8033. Dostupné na: <https://doi.org/10.1039/c9ce01549c>
- ADCA24 CHVÁLA, A.\*\* - NAGY, L. - MAREK, J. - PRIESOL, J. - DONOVAN, D. - ŠATKA, A. - BLAHO, Michal - GREGUŠOVÁ, Dagmar - KUZMÍK, Ján. Device and circuit models of monolithic InAlN/GaN NAND and NOR logic cells comprising D- and E-mode HEMTs. In Journal of Circuits, Systems and Computers : Special Issue on Design, Technology, and Test of Integrated Circuits and Systems, 2019, vol. 19, no. 1940009. (2018: 0.939 - IF, Q4 - JCR, 0.220 - SJR, Q3 - SJR, karentované - CCC). (2019 - Current Contents). ISSN 0218-1266. Dostupné na: <https://doi.org/10.1142/S0218126619400097>
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- AFC03 LOBOTKA, Peter - RADNÓCZI, G. - CZIGÁNY, Zs. - VÁVRA, Ivo - DRŽÍK, Milan - MIČUŠÍK, Matej - DOBROČKA, Edmund - KUNZO, Pavol. Preparation of nickel, nickel-iron, and silver-copper nanoparticles in ionic liquids. In Proceedings of the 17th International Conference on Solid-State Sensors, Actuators and Microsystems : Transducers 2013 & Euroensors XXVII. - IEEE, 2013, p. 2021-2024. ISBN 978-1-4673-5981-8. Dostupné na: <https://doi.org/10.1109/Transducers.2013.6627194>
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- AFC04 VALIK, L. - ĽAPAJNA, Milan - GUCMANN, Filip - FEDOR, Ján - ŠIFFALOVÍČ, Peter - FRÖHLICH, Karol. Distribution of fixed charge in MOS structures with ALD grown Al<sub>2</sub>O<sub>3</sub> studied by capacitance measurements. In ASDAM 2012 : conference proceedings. Eds. Š. Haščík, J. Osvald. - Piscataway : IEEE, 2012, p. 227-230. ISBN 978-1-4673-1195-3.

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- AFC05 ZAŤKO, Bohumír - DUBECKÝ, František - ŠAGÁTOVÁ-PERĐOCHOVÁ, A. - SEDLÁČKOVÁ, K. - BOHÁČEK, Pavol - SEKÁČOVÁ, Mária - NEČAS, V. Detector of fast neutrons based on silicon carbide epitaxial layers. In ASDAM 2012 : conference proceedings. Eds. Š. Haščík, J. Osvald. - Piscataway : IEEE, 2012, p. 151-154. ISBN 978-1-4673-1195-3.

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1. [1.2] OUYANG, Xiaoping - LIU, Linyue. Current Mode Silicon Carbide Detector. In Yuanzineng Kexue Jishu/Atomic Energy Science and Technology. ISSN 10006931, 2019-10-20, 53, 10, pp. 1999-2011., Registrované v: SCOPUS

#### AFD Publikované príspevky na domácich vedeckých konferenciách

- AFD01 GÖMÖRY, Fedor - MOŠAŤ, M. - ŠOUC, Ján. Superconducting fault current limiter operating in liquid nitrogen. In ELEKTRO 2014 : proceedings of the 10th international conference. Eds. P. Brida, J. Dubovan, M. Markovič. - Žilina : FEE Univ. of Žilina, 2014, p. (2014 - SCOPUS). ISBN 978-1-4799-3721-9.

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1. [1.1] NAJI, Hamood - HARID, Nouredine - GRIFFITHS, Huw. Enhancement of DUBAL Network Operational Performance Using Resistive High Temperature Superconducting Fault Current Limiter. In ENERGIES, 2019, vol. 12, no. 15, pp.3007, Registrované v: WOS

- AFD02 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.

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1. [1.1] DING, You - ZHOU, Zhou - WANG, ZhengPing - LIU, HongJun - WANG, KeLei. Bionic Stiffener Layout Optimization with a Flexible Plate in Solar-Powered UAV Surface Structure Design. In APPLIED SCIENCES-BASEL, 2019, vol. 9, no. 23., Registrované v: WOS

2. [1.1] PALACIOS RODRIGUEZ, Susana - ANAYA DIAZ, Jesus - CRUZ LOPEZ, Borja. Lightweight construction design with bearing surfaces. Thin-walled structures. In REVISTA DE LA CONSTRUCCION. ISSN 0718-915X, 2019, vol. 18, no. 2, pp. 398-408., Registrované v: WOS

#### AFK Postery zo zahraničných konferencií

- AFK01 PARDO, Enric - KAPOLKA, Milan - ŠOUC, Ján. 3D and 2D electromagnetic modelling of superconductors: flux cutting effects in finite samples and coated conductor coils up to 10000 turns. In ??? - 12th European Conference on Applied Superconductivity. (12th European Conference on Applied Superconductivity : EUCAS 2015)  
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- AFK02 PICHONAT, E. - KUZMÍK, Ján - BYCHIKHIN, S. - POGANY, D. - POISSON, M.A. - GRIMBERT, B. - GAQUIÈRE, C. Temperature analysis of AlGaIn/GaN high-electron- mobility transistors using micro-Raman scattering spectroscopy and transient interferometric mapping. Dostupné na:  
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*1. [1.1] PRASAD, C. A Review of Self-Heating Effects in Advanced CMOS Technologies. In IEEE TRANSACTIONS ON ELECTRON DEVICES. ISSN 0018-9383, 2019, vol. 66, no. 11, pp. 4546-4555., Registrované v: WOS*  
*2. [1.1] THOMAS, B. R. - FARAMEHR, S. - MOODY, D. C. - EVANS, J. E. - ELWIN, M. P. - IGIC, P. Study of GaN Dual-Drain Magnetic Sensor Performance at Elevated Temperatures. In IEEE TRANSACTIONS ON ELECTRON DEVICES. ISSN 0018-9383, 2019, vol. 66, no. 4, pp. 1937-1941., Registrované v: WOS*
- AFK03 SOLOVYOV, Mykola - GÖMÖRY, Fedor. Magnetization of superconducting tube computed in 3D geometry using A-formulation in Comsol Multiphysics. In ??? - 6th International Workshop on Numerical Modelling of High Temperature Superconductors.  
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*1. [1.1] GOZZELINO, L. - GERBALDO, R. - GHIGO, G. - LAVIANO, F. - TORSELLO, D. - BONINO, V. - TRUCCATO, M. - BATALU, D. - GRIGOROSCU, M.A. - BURDUSEL, M. - ALDICA, G.V. - BADICA, P. Passive magnetic shielding by machinable MgB2 bulks: measurements and numerical simulations. In SUPERCONDUCTOR SCIENCE & TECHNOLOGY. ISSN 0953-2048, MAR 2019, vol. 32, no. 3., Registrované v: WOS*

## GHG Práce zverejnené spôsobom umožňujúcim hromadný prístup

- GHG01 HURAN, Jozef - BOHÁČEK, Pavol - SHVETSOV, V.N. - KOBZEV, A.P. - KLEINOVÁ, Angela - SASINKOVÁ, Vlasta - BALALYKIN, Nikolay I. - SEKÁČOVÁ, Mária - ARBET, Juraj. Amorphous silicon carbide thin films deposited by plasma enhanced chemical vapor deposition at different temperature for hard environment applications. In 21st International Symposium on Plasma Chemistry : Cairns (Australia) 2013 [elektronický zdroj],  
<http://www.ispc-conference.org/ispcproc/ispc21/ID180.pdf>.  
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*1. [1.1] LUKIANOV, A.N. - KLYUI, N.I. - SHA, B. - LOZINSKII, V.B. - TEMCHENKO, V.P. - AVKSENTYEVA, L.V. - STASCHUK, V.S. Effect of discharge power and silicon content on optical and mechanical properties of carbon-rich amorphous silicon carbide films obtained by PECVD. In JOURNAL OF ALLOYS AND COMPOUNDS. ISSN 0925-8388, SEP 15 2019, vol. 801, p.*

*285-294., Registrované v: WOS*

## ***Príloha D***

### **Údaje o pedagogickej činnosti organizácie**

#### Semestrálne prednášky:

#### Semestrálne cvičenia:

Ing. Michal Blaho, PhD.

Názov semestr. predmetu: Praktické cvičenie FTL

Počet hodín za semester: 10

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

RNDr. Dagmar Gregušová, DrSc.

Názov semestr. predmetu: Praktické cvičenie FTL

Počet hodín za semester: 10

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

#### Semináre:

#### Terénne cvičenia:

#### Individuálne prednášky:

doc. Ing. Fedor Gömöry, DrSc.

Názov semestr. predmetu: Elektromagnetizmus supravodičov

Počet hodín za semester: 4

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

**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
Belgicko					Fedor Gömöry	4
Česko					Michal Blaho	1
					Štefan Haščík	1
Dánsko					Bronislava Gelušiaková	141
Nemecko					Marek Mošat'	3
					Michal Vojenčiak	4
Rusko					Iuliia Vetrova	8
Taliansko					Fedor Gömöry	4
					Martin Hulman	6
					Tomáš Kujovič	4
					Marek Mošat'	4
					Marek Mošat'	4
					Michaela Sojková	5
					Michaela Sojková	6
					Michal Vojenčiak	4
					Michal Vojenčiak	4
<b>Počet vyslaní spolu</b>					<b>16</b>	<b>203</b>

**(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
Belgicko					Ciubotaru F.	2
Bulharsko					Georgiev R.	150

Holandsko					Stremoukhov P.	2
Maďarsko					Palotas K.	2
Poľsko					Zelent M.	2
Rakúsko					Suess D.	2
Rumunsko					Enachescu C.	2
					Stoleriu L.	2
Rusko					Kalashnikova A.	2
					Khokhlov N.	2
					Sadovnikov A.	30
Taliansko					Di Bitetto V.	150
Ukrajina					Lyubchanskii I.	2
Veľká Británia					Kruglyak V.	2
					Ostler T.	2
<b>Počet prijatí spolu</b>					<b>15</b>	<b>354</b>

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

Krajina	Názov konferencie	Meno pracovníka	Počet dní
Taliansko	Iron-B 2020	Fedor Gömöry	7
	SuperFox 2020	Fedor Gömöry	6
<b>Spolu</b>	<b>2</b>	<b>2</b>	<b>13</b>

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

Skratky použité v tabuľke C:

Iron-B 2020 - International Workshop on the Iron-based Superconductors

SuperFox 2020 - 5th International Conference on Superconductivity and Functional Oxides

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

<b>Meno</b>	<b>Spoluautori</b>	<b>Typ<sup>1</sup></b>	<b>Názov</b>	<b>Miesto zverejnenia</b>	<b>Dátum alebo počet za rok</b>
Ing. Michal Blaho, PhD.		TL	Elektronika budúcnosti	Quark	1.12.2020
Ing. Michal Blaho, PhD.		PB	Science Slam SAV 2020	Nová Cvernovka	26.2.2020
doc. Ing. Fedor Gömöry, DrSc.		iné	Skús pokus, súťaž organizovaná vydavateľom učebníc Expol Pedagogika, predseda poroty	Internet	24.11.2020
Ing. Milan Ťapajna, PhD.		IN	Dokument: Slovenskí vedci	Internet	4.4.2020
Ing. Milan Ťapajna, PhD.		PB	Nové technológie pre 5G siete	Veda v centre (CVTI)	27.2.2020

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