

**Ústav stavebníctva a architektúry SAV, v. v. i.**



**Výročná správa o činnosti a hospodárení  
za rok 2023**

Bratislava  
február 2024

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## ČASŤ A

**Ústav stavebníctva a architektúry SAV, v. v. i.**

**Výročná správa o činnosti organizácie  
za rok 2023**

## 1. Základné údaje o organizácii

### 1.1. Kontaktné údaje

**Názov:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Riaditeľ:** Prof.Dr.Ing. Martin-Tchingnabé Palou  
**Zástupca riaditeľa:** Ing. Peter Matiašovský, CSc.  
**Vedecký tajomník:** RNDr. Ladislav Kómar, PhD.  
**Predseda vedeckej rady:** Mgr. Miroslav Kocifaj, DrSc.  
**Člen Snemu SAV:** Ing. Miroslav Repka, PhD.  
**Adresa:** Dúbravská cesta 9, 845 03 Bratislava 45

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

**Tel.:** 02/ 5477 3548

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

### Názvy a adresy organizačných zložiek a detašovaných pracovísk:

Organizačné zložky: nie sú

Detašované pracoviská: nie sú

### Vedúci organizačných zložiek a detašovaných pracovísk:

Organizačné zložky: nie sú

Detašované pracoviská: nie sú

**Členovia Snemu SAV za organizačné zložky:**  
nie sú

**Typ organizácie:** Verejná výskumná inštitúcia od roku 2022

### 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				
<b>Celkový počet zamestnancov</b>	46	33	13	5	2	41	35.39	21.82	0
<b>Vedeckí pracovníci</b>	24	23	1	4	0	20	17.71	16.32	0
<b>Odborní pracovníci VŠ</b> (výskumní a vývojoví zamestnanci <sup>1)</sup> )	8	5	3	1	2	7	4.97	3.5	0
<b>Odborní pracovníci VŠ</b> (ostatní zamestnanci <sup>2)</sup> )	3	0	3	0	0	3	2.38	0	0

<b>Odborní pracovníci ÚS</b>	6	2	4	0	0	6	5.33	2	0
<b>Ostatní pracovníci</b>	5	3	2	0	0	5	5	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 31.12.2023 (uvádzať zamestnancov v pracovnom pomere, vrátane riadnej materskej dovolenky, zamestnancov pôsobiacich v zahraničí, v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiacich v zastupiteľských zboroch)*

*F – fyzický stav zamestnancov k 31.12.2023 (bez riadnej materskej dovolenky, zamestnancov pôsobiacich v zahraničí v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiacich 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 administratívne, správe a údržbe budov, upratovačiek, vodičov a pod.*

*M, Ž – muži, ženy*

Tabuľka 1b Štruktúra vedeckých pracovníkov (kmeňový stav k 31.12.2023)

<b>Rodová skladba</b>	<b>Pracovníci s hodnotou</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>	3	18	3	3	4	10	9
<b>Ženy</b>	1	0	0	0	0	0	1

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>	0	0.0	2	0.9	4	3.6	3	2.5	0	0.0	1	1.0	1	1.0	2	2.0	3	3.0
<b>Ženy</b>	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	0	0.0	0	0.0

*A - Prepočet bez zohľadnenia úväzkov zamestnancov*

*B - Prepočet so zohľadnením úväzkov zamestnancov*

Tabuľka 1d Priemerný vek zamestnancov organizácie k 31.12.2023

	<b>Kmeňoví zamestnanci</b>	<b>Vedeckí pracovníci</b>	<b>Riešitelia projektov</b>
<b>Muži</b>	48.0	44.2	49.2
<b>Ženy</b>	52.4	61.0	57.0
<b>Spolu</b>	49.2	44.9	49.7

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

## 2. Vedecko-výskumná činnosť – projekty, výsledky

### 2.1. Domáce projekty

Tabuľka 2a Domáce projekty riešené v roku 2023

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>	4	0	40812	38936	-	-	-	-
<b>2. Projekty APVV</b>	5	0	-	-	160809	142321	-	-
<b>3. Projekty EŠIF/OP ŠF, Plán obnovy EÚ</b>	0	0	-	-	-	-	-	-
<b>4. Projekty SASPRO, MoRePro, IMPULZ</b>	2	0	65508	65508	63020	63020	-	-
<b>5. Iné projekty (FM EHP, Vedecko-technické projekty, na objednávku rezortov a pod.)</b>	0	0	-	-	-	-	-	-

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

Tabuľka 2b Domáce projekty podané v roku 2023

Štruktúra projektov	Miesto podania	Organizácia je nositeľom projektu	Organizácia sa zmluvne podieľa na riešení projektu
<b>1. Účasť na nových výzvach APVV r. 2023</b>	-	4	
<b>2. Projekty výziev EŠIF podané r. 2023</b>	Bratislava		
	Regióny		



## 2.2. Medzinárodné projekty

### 2.2.1. Medzinárodné projekty riešené v roku 2023

Tabuľka 2c Medzinárodné projekty riešené v roku 2023

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 Horizont 2020 a Horizont Európa</b>	0	0	-	-	-	-	-	-
<b>2. Projekty ERA.NET, ESA, JRP</b>	0	0	-	-	-	-	-	-
<b>3. Projekty COST</b>	0	1	-	-	-	-	3125	-
<b>4. Projekty EUREKA, NATO, UNESCO, CERN, IAEA, IVF, ERDF a iné</b>	0	1	-	-	-	-	-	-
<b>5. Projekty v rámci medzivládnych dohôd</b>	0	0	-	-	-	-	-	-
<b>6. Bilaterálne projekty MAD, Mobility, Open Mobility</b>	0	0	-	-	-	-	-	-
<b>7. Bilaterálne projekty ostatné</b>	0	0	-	-	-	-	-	-
<b>8. Podpora MVTs z národných zdrojov (SAV, APVV a iné)</b>	1	0	833	-	-	-	-	-
<b>9. SAS-UPJŠ ERC Visiting Fellowship Grants</b>	0	0	-	-	-	-	-	-
<b>10. Iné projekty</b>	0	0	-	-	-	-	-	-

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

## 2.2.2. Medzinárodné projekty Horizont Európa podané v roku 2023

Tabuľka 2d Počet projektov Horizont Európa v roku 2023

	A	B
<b>Počet podaných projektov Horizont Európa</b>		

A - organizácia je nositeľom projektu

B - organizácia sa zmluvne podieľa na riešení projektu

Údaje k domácim a medzinárodným projektom sú uvedené v Prílohe A-2.

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

## 2.3. Výber najvýznamnejších výsledkov vedeckej práce organizácie v roku 2023

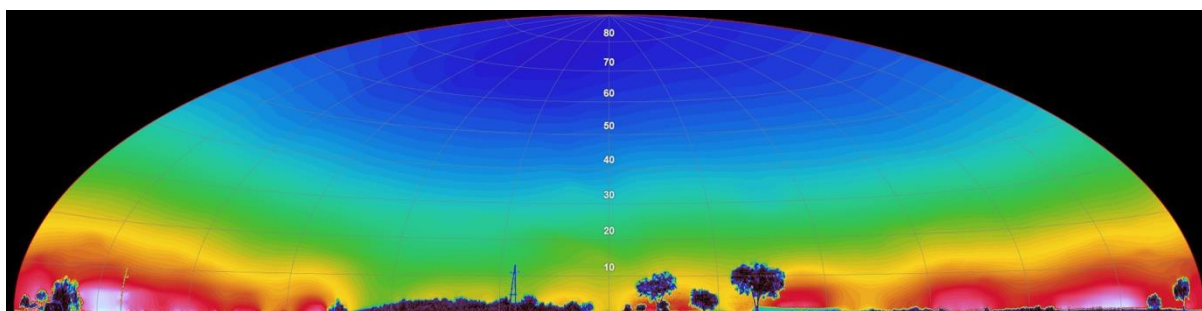
Slúži aj na výber výsledkov do výročnej správy SAV. Každý výsledok má byť charakterizovaný stručným, všeobecne zrozumiteľným popisom – maximálne 1000 znakov + 1 obrázok; bibliografický údaj uvádzajte rovnako ako v zozname publikačnej činnosti, vrátane IF. Nadpis by mal vystihnúť prínos a význam výsledku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

### 2.3.1. Výsledky na báze základného výskumu

**Názov:** Nová generácia predpovedného modelu svetelného znečistenia

**Riešitelia:** M. Kocifaj, L. Kómar, H. Lamphar, J. Barentine, S. Wallner

Množstvo umelých zdrojov vyžarujúcich svetlo nekontrolovane do spodných vrstiev atmosféry spôsobuje presvetlenie blízkeho okolia miest a zvyšuje aj úroveň jasu nočnej oblohy (NSB) v inak prirodzene tmavých vidieckych regiónoch. Súčasný trend zavádzania nových technológií v systémoch mestského osvetlenia zvyšuje tlak na vývoj presných modelov šírenia svetelného znečistenia do okolitého prostredia umožňujúcich predpovedať zmeny NSB ešte pred plánovanou rekonštrukciou verejného osvetlenia a ušetriť tak nemalé náklady spojené napr. s výmenou nevhodne zvolených svetelných zdrojov. V práci sme prišli s presným a rýchlym riešením pre výpočet NSB a súčasne sme poukázali na vážny nedostatok súčasných modelov, ktoré výrazne podhodnocujú úrovne svetelného znečistenia. Dopady tejto práce sú tak zásadné pre interpretáciu a ďalšie využitie doteraz zhromaždených dát z celosvetových monitorovacích sietí. Pozorovaný nárast NSB v mnohých lokalitách totiž nemusí byť priamo spojený s nárastom svetelných emisií z miest a obcí, ale môže súvisieť s charakterom znečistenia v danej lokalite.



Obr.: Rozloženie jasu na oblohe v Hammer-Aitoff projekcii získané 19 júna 2018 o 1:29 miestneho času blízko Illmitz, Rakúsko. Zdroje svetla viditeľné na horizonte sú zobrazené pozdĺž x-osi. Zenit sa nachádza v najvyššom bode 90° nad horizontom. Farebná škála nereprezentuje skutočný vizuálny vnem, ale bola zvolená za účelom lepšieho zobrazenia úrovni jasu na oblohe. Údaje jasu sú v logaritmickej mierke.

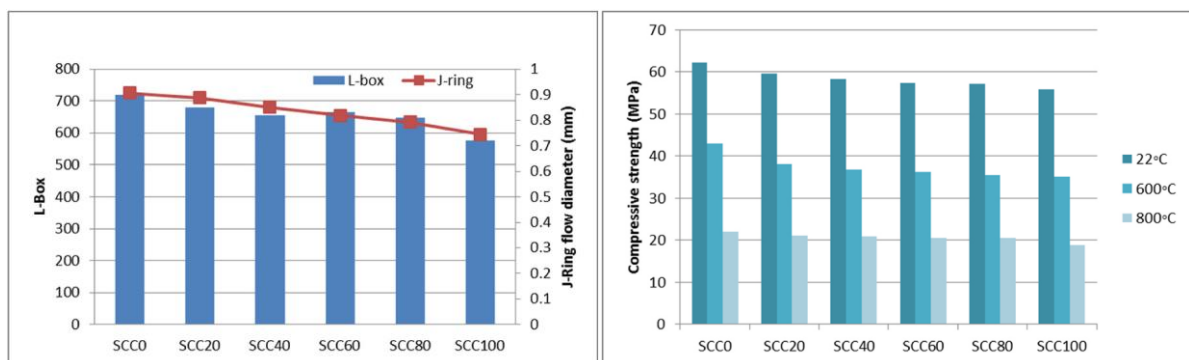
KOCIFAJ, Miroslav - KÓMAR, Ladislav - SOLANO LAMPHAR, H. A. - BARENTINE, John C. - WALLNER, Stefan. A systematic light pollution modelling bias in present night sky brightness predictions. In Nature Astronomy, 2023, vol. 7, no. 3, p. 269-279. (2022: 14.1 - IF, Q1 - JCR, 3.269 - SJR, Q1 - SJR). ISSN 2397-3366. Dostupné na: <https://doi.org/10.1038/s41550-023-01916-y>. Typ: ADCA

**Názov:** Materiálové zloženie a vlastnosti samozhutniteľných ťažkých betónov

**Riešitelia:** Tawfik, T. A., Slaný, M., Palou, M.-T.

Tento výskum bol zameraný na optimalizáciu betónového zloženia počnúc distribúcie veľkosti častíc agregátov na základe reologických charakteristík samozhutniteľných betónov podľa Európskych smerníc (EFNARC 2005 The European guidelines for self-compacting concrete) a substitúciou hrubého prírodného kameniva (veľkosť 4–8 mm) barytom (veľkosť 4–8 mm) s rôznymi percentami (0, 20, 40, 60, 80, a 100 %). Bol stanovený návrh zloženia samozhutniteľného normálneho betónu s prírodným kamenivom a normálneho ťažkého betónu s barytom ako okrajovými podmienkami. Zloženie betónu sa postupne optimalizovalo kombináciou bežného kameniva a barytu tak, aby objemová hmotnosť bola vyššia ako  $2600 \text{ kg.m}^{-3}$  a zároveň boli splnené podmienky samozhutnenia. Zisťovali sa charakteristiky samozhutniteľnosti (konzistencia, viskozita, roztekavosť a pod.) čerstvého betónu, mechanické vlastnosti a objemová hmotnosť zatvrdnutého betónu po 2, 28 a 90 dňoch. Vo všeobecnosti zvýšenie obsahu barytového kameniva viedlo k zhoršeniu spracovateľnosti čerstvého betónu. Betóny obsahujúce až 80 % barytového hrubého kameniva spĺňali všetky kritériá SCC odporúčané EFNARC. Okrem toho sa analyzovali pórové štruktúry, mikroštruktúry, odolnosť voči napadnutiu síranom a zvyšková pevnosť po vystavení účinku teploty ( $600^\circ\text{C}$  a  $800^\circ\text{C}$ ).

Tawfik, Taher Anwar - Slaný, Michal - Palou, Martin T. Influence of heavyweight aggregate on the fresh, mechanical, durability, and microstructural properties of self-compacting concrete under elevated temperatures. In Journal of building engineering, 2023, vol. 80, art. no. 108104. (2022: 6.4 - IF, Q1 - JCR, 1.232 - SJR, Q1 - SJR). ISSN 2352-7102. <https://doi.org/10.1016/j.jobee.2023.108104>



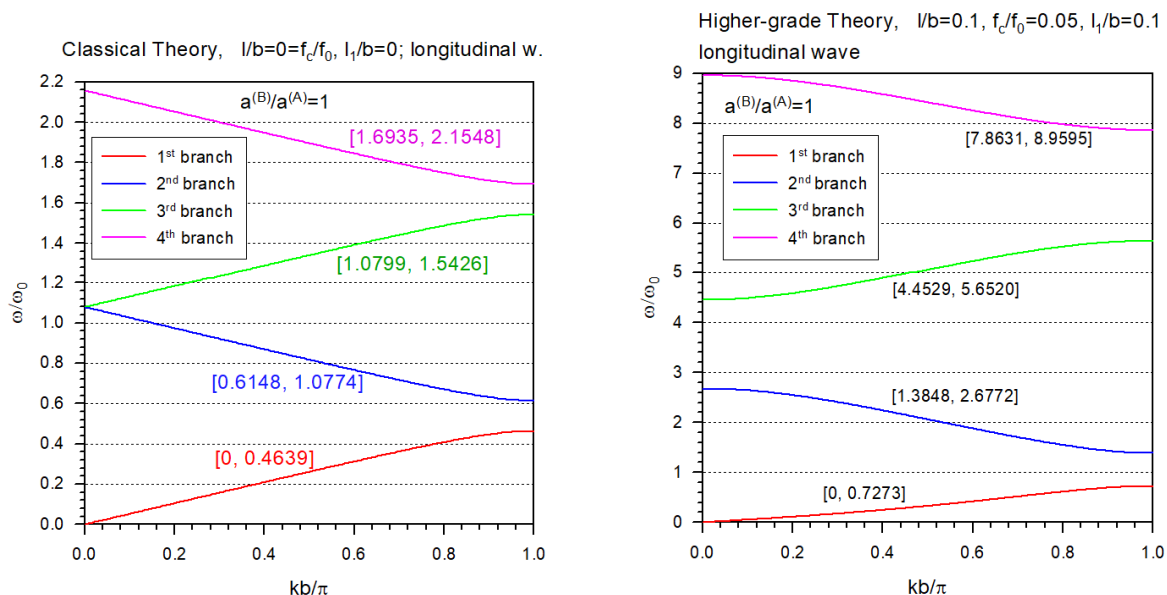
Vplyv barytu na reológiu a mechanické vlastnosti

**Názov:** Modelovanie a numerické simulácie mikro-štruktúrálnej javov v malých vzorkách

**Riešitelia:** V. Sládek, J. Sládek, L. Sátor, M. Repka

Pre klasické teórie kontinua je charakteristické, že sú škálovo invariantné. Avšak s rozvojom mikro/nano-technológií sa zistilo a experimentálne potvrdilo, že odozva takých malých súčiastok na vonkajšie podnety je závislá od veľkosti súčiastok. Preto nastal čas siahnuť po čiastočne zabudnutých gradientných teóriách kontinua zo 60-tych rokov 20. storočia, ktoré kvalitatívne vystihujú veľkostné efekty. So zvyšovaním rádu gradientných polí narastá aj počet polí, od miery ktorých závisí vnútorná energia vzorky, a tiež sa

rozširuje paleta možných vzájomných interakcií, čo prináša nové javy. K takýmto javom patrí aj flexoelektricitá (čo vedie k elektrickej polarizácii aj v dielektrikách vykazujúcich centrosymetriu, kde piezoelektrický efekt neexistuje), zmena typu singularity elastických napätí v koreni trhliny, vplyv mikroštruktúrnych vlastností (mikro-tuhosť, mikro-inercia, flexoelektricitá) na pásovú štruktúru disperzných vzťahov a grupovej rýchlosti Blochových vln v periodickej bi-materiálovej mnohovrstvovej štruktúre. Modelovanie a numerické simulácie spomenutých javov patria k výsledkom dosiahnutým v poslednom roku riešenia projektu VEGA 2/0061/20.



Obr. Porovnanie pásovej štruktúry disperzných vzťahov pre Blochove vlny bez a so zohľadnením mikroštruktúrnych materiálových vlastností

SLÁDEK, Vladimír\*\* - SLÁDEK, Ján - SÁTOR, Ladislav - LI, Yueqiu. Micro-structural effects in phononic dielectric structures. In *Composite Structures*, 2023, vol. 309, art. no. 116548, p. 1-17. (2022: 6.3 - IF, Q1 - JCR, 1.455 - SJR, Q1 - SJR). ISSN 0263-8223. <https://doi.org/10.1016/j.compstruct.2022.116548>

PROFANT, Tomáš - SLÁDEK, Ján\*\* - SLÁDEK, Vladimír. Asymptotic solutions for interface cracks between two dissimilar flexoelectric materials : published online. In *Mechanics of Advanced Materials and Structures*, 2023, vol., online. (2022: 2.8 - IF, Q2 - JCR, 0.669 - SJR, Q2 - SJR). ISSN 1537-6494. <https://doi.org/10.1080/15376494.2023.2226136>

PROFANT, Tomáš\*\* - SLÁDEK, Ján - SLÁDEK, Vladimír - KOTOUL, Michal. Assessment of amplitude factors of asymptotic expansion at crack tip in flexoelectric solid under mode I and II loadings. In *International Journal of Solids and Structures*, 2023, vol. 269, art. no. 112194. (2022: 3.6 - IF, Q2 - JCR, 1.046 - SJR, Q1 - SJR). ISSN 0020-7683. <https://doi.org/10.1016/j.ijsolstr.2023.112194>

SLÁDEK, Ján\*\* - SLÁDEK, Vladimír - HRYTSYNA, Maryan - PROFANT, Tomáš. Influence of flexoelectricity on interface crack problems under a dynamic load. In *Engineering Fracture Mechanics*, 2023, vol. 288, art. no. 109353. (2022: 5.4 - IF, Q1 - JCR, 1.281 - SJR, Q1 - SJR). ISSN 0013-7944. <https://doi.org/10.1016/j.engfracmech.2023.109353>

### 2.3.2. Výsledky aplikačného typu

### 2.3.3. Výsledky na báze medzinárodnej spolupráce

**Názov:** Korekcia systematickej chyby v súčasných výpočtoch dostupnosti solárnej energie

**Riešitelia:** M. Kocifaj v rámci COST Action CA21119

Aerosól je najväčším modulátorom hustoty toku žiarenia v okoloslnečnej zóne, ktorá v podmienkach zakalenej atmosféry významne ovplyvňuje dostupnosť slnečnej energie na fotovoltaických článkoch. Predpovedné modely sa zvyčajne spoliehajú na Mieho teóriu, ktorá je aplikovateľná pre ideálne sférické častice ľubovoľných rozmerov. Pevné častice v atmosfére však majú zložitú morfológiu, pričom jej vplyv na rozptyl svetla je markantný najmä v oblasti malých uhlov tzv. Fraunhoferovskej difrakcie, teda práve v okoloslnečnej zóne. Ukázali sme, že modely založené na Mieho teórii systematicky podhodnocujú cirkumsolárne žiarenie v porovnaní s tým, čo možno očakávať v prípade nesférických častíc. Priemerné zjasnenie slnečnej koróny v dôsledku nesférických aerosólov je 10–20%, ale v prípade ihličkovitých alebo diskovitých častíc môže byť až 40–50 %. Výsledkom práce je zavedenie korekčného faktora, ktorý spresní súčasné modely bez potreby opätovného prepočítania výsledkov doterajších štúdií.

Aspect ratio ( $\epsilon$ )	$Q_{oblate}$	Aspect ratio ( $\epsilon$ )	$Q_{prolate}$
0.8	1.01	1.0	1.00
0.7	1.02	1.5	1.03
0.6	1.05	2.0	1.08
0.5	1.10	2.5	1.13
0.4	1.17	3.0	1.18
0.3	1.31	4.0	1.28
0.2	1.60	5.0	1.37

Obr.: Faktor zosilnenia okoloslnečného žiarenia z dôvodu nesféricity aerosólových častíc.

KOCIFAJ, Miroslav. A systematic bias in present models of circumsolar radiation. In Solar Energy, 2023, vol. 264, art. no. 112036. (2022: 6.7 - IF, Q2 - JCR, 1.373 - SJR, Q1 - SJR). ISSN 0038-092X. Dostupné na: <https://doi.org/10.1016/j.solener.2023.112036>. Typ: ADCA

**Názov:** Talpa House - prvá aplikácia betónu s recyklovaným kamenivom na Slovensku

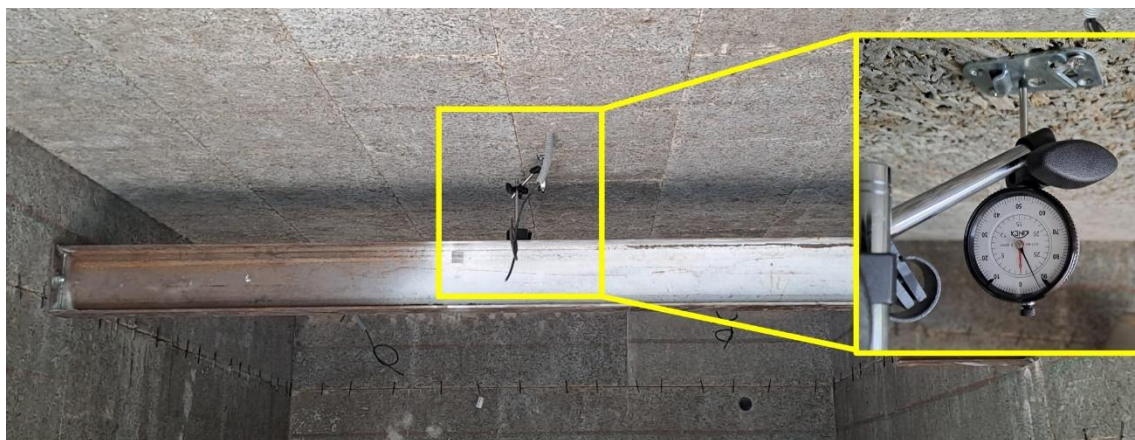
**Riešitelia:** Palou, M.-T.,

REBUILT« CIRCULAR AND DIGITAL RENEWAL OF CENTRAL EUROPE CONSTRUCTION AND BUILDING SECTOR

Betón je najpoužívateľnejším stavebným materiálom na svete; je náročným na spotrebu materiálov a je jedným z najväčších zdrojov emisií skleníkových plynov. V poslednom období sa ale čelí najťažšej výzve od svojho objavenia. Tá spočíva v jeho udržateľnosti pre ďalšie generácie. S postupom času začína byť čoraz väčší deficit po neobnoviteľných zdrojoch, s čím súvisí prechod z lineárneho na obehové (cirkulárne) hospodárstvo. Trvalá udržateľnosť stavebnej výroby je problematika, ktorou sa stáva čoraz aktuálnejšou. Jednou z možností, ako šetriť pri výstavbe niektorých konštrukcií prírodné zdroje, je náhrada prírodného kameniva do betónu určitým podielom recyklovaného materiálu. Recyklovaný betón (RAC – recycled aggregate concrete alebo RC – recycled concrete) je spoločné pomenovanie pre betóny, ktoré využívajú recyklované kamenivo (RA – recycled aggregate) vyrobené čiastočným alebo úplným drvením odpadového betónu a jeho následným



triedením. Využitie recyklovaných kamenív je možné v niektorých inžinierskych konštrukciách, pozemných stavbách, ako aj v prefabrikácii.

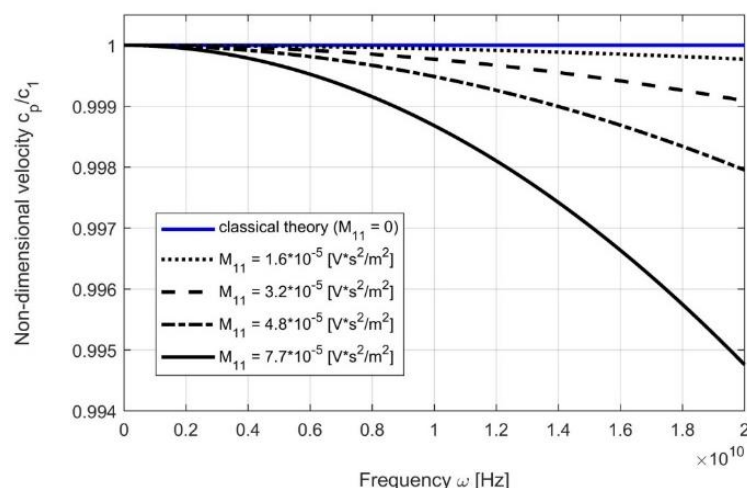


Prvá konštrukcia z recyklovaného betónu na Slovensku

**Názov:** Lokálne gradientna teória dielektrik s uvažovaním inercie polarizácie, flexodynamického efektu a neklasického zákona vedenia tepla (SK-UA-21-0010).

**Riešitelia:** Hrytsyna O., Hrytsyna M.

V prácach [1-6] je navrhnutá gradientna teória neferomagnetických elektrotermoelastických dielektrík. Teória uvažuje vplyv inercie polarizácie, flexodynamického efektu a materiálnej mikroštruktúry na spojené polia v dielektrikách. Systém zviazaných rovníc teórie (konštitutívne rovnice gradientného typu, zákon nelokálneho vedenia tepla, riadiace rovnice) je formulovaný s použitím základných princípov nerovnovážnej termodynamiky, mechaniky kontinua a elektrodynamiky. V porovnaní s klasickou teóriou v rovnici rovnováhy kontinua sa objavuje doplnkový člen s druhou časovou deriváciou polarizácie. Tento člen popisuje vplyv dynamického flexoelektrického efektu na mechanický pohyb dielektrík. Zohľadnením inercie polarizácie sme získali reologické konštitutívne rovnice pre polarizačný vector [1]. V práci [4] je navrhnutý variačný prístup na formuláciu lineárnych okrajových úloh gradientnej elektroelasticity s mikro-inertným a flexoelektrickým efektami. Šírenie harmonickej vlny je analyzované v kontexte rozvinutej teórie. Zistili sme, že teória popisuje vysokofrekvenčnú disperziu pozdĺžnej elastickej vlny [1]. Analytické výsledky ukázali, že flexodynamický efekt ovplyvňuje elektromechanické správanie vln. V práci [2] sa študuje šírenie sférických termoelastických harmonických vln v izotropnom prostredí s neklasickým zákonom vedenia tepla. Numerické výsledky ukázali, že vplyv nelokálneho vedenia tepla na správanie modifikovanej tepelnej vlny môže byť podstatný pre kratšie vlnové dĺžky. Teória sa tiež používa na štúdium odozvy elektrickej polarizácie v izotropnom prostredí a doske na gradient teploty [2, 3]. Analytické riešenia demonštrujú, že oproti klasickej teórii, nová teória popisuje veľkostný a termopolarizačný efekty, a elektrotermomechanické väzbové efekty v nepiezoelektrických materiáloch.



Non-dimensional phase velocity of the longitudinal elastic wave versus wave frequency for different values of flexodynamic coefficient.

Hrytsyna O., Tokovyy Y. V., Hrytsyna M. Local gradient theory of dielectrics incorporating polarization inertia and flexodynamic effect. *Continuum Mechanics and Thermodynamics*, 2023, Vol. 35, no. 6, p. 2125–2144. <https://doi.org/10.1007/s00161-023-01229-5>

Hrytsyna O., Tokovyy Y., Hrytsyna M. Non-classical theory of electro-thermo-elasticity incorporating local mass displacement and nonlocal heat conduction. *Mathematics and Mechanics of Solids*. 2023. (published online 2023) <https://doi.org/10.1177/10812865231201132>

Hrytsyna O., Hrytsyna M. Electro-thermo-mechanical interaction in an isotropic polarized plate with thermal inclusion. In: *Information Technologies and Computer Modelling – 2023*. Ivano-Frankivsk: PNU im. V. Stefanyka, 2023, p. 169–170. ISBN 978-617-8128-23-4.

<https://item.comp-sc.if.ua/2023/zbirnuk-2023.pdf>

Hrytsyna O., Hrytsyna M. Variational formulation of boundary problems of local gradient electroelasticity incorporating micro-inertia and flexodynamic effect. In: *Current problems of Mechanics and Mathematics – 2023: Collection of scientific papers / Edited by R. M. Kushnir and V. O. Pelykh [Published Online] // Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of NAS of Ukraine*. 2023, p. 125–126.

<http://iapmm.lviv.ua/mpmm2023/materials/proceedings.mpmm2023.pdf>

#### 2.3.4. Iné významné výsledky

**Názov:** Vplyv geotermálnych roztoku a teploty na počiatočné a stredné štádiá hydratácie viaczožkového cementu

**Riešitelia:** Palou, M.-T., Žemlička, M., Slaný, M.

Štúdium skorých a stredných štádií hydratácie v systémoch zložených z portlandského cementu triedy G (PC) – kremičitého úletu (SF) – metakaolínu (MK) a portlandského cementu triedy G (PC) – kremičitého úletu (SF) – vysokopecnej trosky (BFS) bolo vykonané izotermickou vodivostnou kalorimetriou, termogravimetrickou röntgenovou difrakčnou a infračervenou analýzou. Skúmal sa vplyv materiálového zloženia, teploty (25, 60 a 80 °C) a hydratačného média (voda a geotermálny roztok). Geotermálny roztok oddialil hlavné hydratačné fázy. Ak však vezmeme do úvahy časy kalorimetrických maxim pri 25 °C, geotermálny roztok viedol k tvorbe hydratačných produktov s vyššími polymerizovanými štruktúrami a významnejšími množstvami ako hydratačný proces s použitím vody. Pri vyšších teplotách sa spomaľovací účinok geotermálneho roztoku stal menej viditeľným; napriek tomu sa zistil vyšší stupeň polymerizácie oxidu kremičitého a viac produktov hydratácie vo vzorkách, ktoré boli hydratované vo vode. Bez ohľadu na teplotu hydratácie sa hydratácia

vykonaná v geotermálnom roztoku stala účinnejšou po 40 hodinách. Účinok kremičitého úletu spojený s vyššími teplotami viedol k zrýchlenej hydratácii, čo viedlo k rýchlejšiemu vyčerpaniu sadry. Prítomnosť fáz  $\text{SO}_4\text{-AFm}$  a  $\text{CO}_3\text{-AFm}$  bola potvrdená počas obdobia spomalenia hydratačného procesu s použitím vody a geotermálneho roztoku.

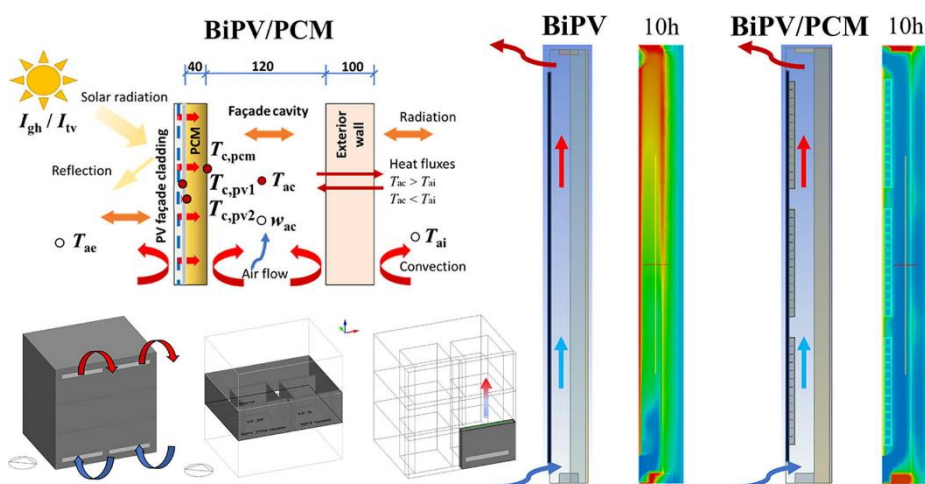
Kuzielová, Eva - Tatarko, Miroslav - Slaný, Michal - Žemlička, Matúš - Másilko, Jiří - Novotný, Radoslav - Palou, Martin T. Early and middle stages of multicomponent cement hydration under the effect of geothermal water and increased temperatures. In *Geothermics*, 2023, vol. 108, art. no. 102632, p. 1-13. (2022: 3.9 - IF, Q2 - JCR, 0.912 - SJR, Q1 - SJR). ISSN 0375-6505. <https://doi.org/10.1016/j.geothermics.2022.102632>

## Názov: Termodynamické odozvy adaptívnych mechanizmov vo fasádnych systémoch BiPV spojené s latentným ukladaním tepelnej energie

Riešitelia: Jakub Čurpek, Miroslav Čekon, Ondřej Šíkula, Richard Slávik

Prevetrané integrované fotovoltaičné fasády (BiPV) s materiálmi s fázovou zmenou (PCM) boli aplikované a overené v energetických simuláciách budov, nakoľko dynamická tepelná odozva týchto fasád ešte nebola skúmaná. Predpovede a simulácie výkonnosti týchto systémov s prirodzeným prúdením vzduchu vo fasádnej medzere sú dôležité pre usmernenie pri tvorbe energeticky účinných budov. Na vyriešenie tejto výzvy sa v tejto práci vykonali numerické analýzy so zameraním na adaptívne reakcie fasádneho systému BiPV spojeného s latentným systémom skladovania tepelnej energie na báze PCM. Boli vyhodnotené numerické metódy na stanovenie transferu tepla v PCM vrátane ich obmedzení. Termodynamické reakcie dvoch fasádnych konceptov BiPV boli komparatívne skúmané pomocou dvoch simulačných metód: energetické simulácie budov (BES) a výpočtová dynamika tekutín (CFD). Hodnotila sa aj spoľahlivosť teoretických metód. Adekvátne zhoda medzi výsledkami simulácie a experimentálnymi údajmi bola zaznamenaná prostredníctvom dynamických vonkajších experimentov, ktoré empiricky potvrdili štúdiu; štandardné štatistické ukazovatele boli vypočítané a použité na posúdenie zhody medzi experimentálnymi a simulačnými výsledkami. Použitý numerický prístup dokáže spoľahlivo predpovedať termoresponzívne schopnosti fasád BiPV na báze PCM s ohľadom na celkové tendencie. Techniky zmeny parametrov odhalili zmeny v celkovom tepelnom a energetickom výkone fasádneho systému. Najviac nežiaduci prípad prehriatia bol predpovedaný pri použití RT27; preto sa takýto typ PCM v danom prípade považuje za nevhodný.

ČURPEK, Jakub - ČEKON, Miroslav\*\* - ŠÍKULA, Ondřej - SLÁVIK, Richard. Thermodynamic responses of adaptive mechanisms in BiPV façade systems coupled with latent thermal energy storage. In *Energy and Buildings*, 2023, vol. 279, art. no. 112665, p. 1-18. (2022: 6.7 - IF, Q1 - JCR, 1.608 - SJR, Q1 - SJR). ISSN 0378-7788. Dostupné na: <https://doi.org/10.1016/j.enbuild.2022.112665> Typ: ADCA



Analýza dvoch simulačných metód v rámci výskumu integrovanej fotovoltickej fasády s materiálom s fázovou zmenou



**2.4. Publikačná činnosť** (zoznam je uvedený v prílohe A-3)

Tabuľka 2e Štatistika vybraných kategórií publikácií

<b>PUBLIKAČNÁ A EDIČNÁ ČINNOSŤ</b>	<b>Počet v r. 2023/ doplňky z r. 2022</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>43 / 0</b>
<b>10. Vedecké práce registrované vo Web of Science Core Collection alebo Scopus (ADMA, ADMB, ADNA, ADNB)</b>	<b>15 / 1</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>1 / 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>1 / 0</b>
<b>16. Publikované príspevky na zahraničných vedeckých konferenciách (AFA, AFC)</b>	<b>7 / 0</b>
<b>17. Vydané periodiká evidované v CCC, WoS Core Collection, SCOPUS</b>	<b>0</b>
<b>18. Ostatné vydané periodiká</b>	<b>0</b>
<b>19. Zostavovateľské práce knižného charakteru (FAI)</b>	<b>0 / 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 sa len tie práce zamestnancov a doktorandov, v ktorých je uvedená afiliácia k organizácii*

Tabuľka 2f Štatistika vedeckých prác podľa kvartilu vedeckého časopisu

Kvartil vedeckého časopisu	Q1	Q2	Q3	Q4	Spolu
<b>Podľa IF z r. 2022 (zdroj JCR)</b> <i>Počet článkov / doplnky</i>	27 / 0	17 / 0	0 / 0	0 / 0	44 / 0
<b>Podľa SJR z r. 2022 (zdroj Scimago)</b> <i>Počet článkov / doplnky</i>	33 / 0	12 / 0	1 / 0	12 / 0	58 / 0

Tabuľka 2g Ohlasy

OHLASY	Počet v r. 2022/ doplnky z r. 2021
<b>Citácie vo WOS (1.1, 2.1)</b>	1031 / 11
<b>Citácie v SCOPUS (1.2, 2.2)</b>	118 / 3
<b>Citácie v iných citačných indexoch a databázach (9, 10, 3.2, 4.2)</b>	0 / 0
<b>Citácie v publikáciách neregistrovaných v citačných indexoch (3, 4, 3.1, 4.1)</b>	1 / 0
<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>	15
<b>Prednášky a vývesky na národných vedeckých podujatiach</b>	3

## 2.6. Vyžiadané prednášky

*Ak boli príspevky publikované, sú súčasťou prílohy A-3, kategória (AFC, AFD, AFE, AFF, AFG, AFH)*

### 2.6.1. Vyžiadané prednášky na medzinárodných vedeckých podujatiach

### 2.6.2. Vyžiadané prednášky na národných vedeckých podujatiach

### 2.6.3. Vyžiadané prednášky na významných vedeckých inštitúciách

M. Kocifaj: Modeling and measuring anthropogenic skyglow. Temps – Espace – Société, 9.5.2023, 14:30, Salle Denisse, Observatoire de Paris, 77 avenue Denfert Rochereau, 75014 Paris. <https://indico.obspm.fr/event/1949/>, <https://indico.obspm.fr/category/68/>

M. Kocifaj, F. Kundracik: LIGHT POLLUTION +++ Modeling tools +++. The DesignLights Consortium (DLC), www.designlights.org, 21.4.2023. Led by Leora C. Radetsky, Senior Lighting Scientist, lrads@designlights.org

## 2.7. Patentová a licenčná činnosť na Slovensku a v zahraničí v roku 2023

### 2.7.1. Vynálezy, na ktoré bol v roku 2023 udelený patent

#### a) na Slovensku

Spôsob prípravy čistej kubickej formy kryštalického analcímu, **PP 50038-2020-SK 289147 B6**, Ústav stavebníctva a architektúry Slovenskej akadémie vied, verejná výskumná inštitúcia, Bratislava. Dátum zverejnenia prihlášky: 12. 1. 2022 Vestník ÚPV SR č.: 1/2022, dátum oznámenia o sprístupnení dokumentu: 10. 1. 2024 Vestník ÚPV SR č.: 1/2024; Palou Martin T., prof. Dr. Ing., Kuzielová Eva, Ing., PhD., Žemlička Matúš, Ing., PhD.,

**b) v zahraničí**

**2.7.2. Vynálezy prihlásené v roku 2023**

**a) na Slovensku**

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

**c) PCT**

**d) EP**

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

**2.7.3. Úžitkové vzory na Slovensku**

**a) prihlásené v roku 2023**

**b) udelené v roku 2023**

**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 2023 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
Čekon Miroslav	KEGA	2
Sládek Vladimír	APVV	1
Palou Martin-T.	VEGA	1

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

Počet autorov hesiel: 0

## 2.10. Recenzovanie knižných publikácií a príspevkov vo vedeckých časopisoch

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

Meno pracovníka	Ved. monografie		Príspevky v časopisoch			Zborníky	
	Domáce	Zahra-ničné	WoS, SCOPUS	Iné databázy	Ostatné	Domáce	Zahra-ničné
Čekon Miroslav	0	0	17	0	0	0	0
Čurpek Jakub	0	0	5	0	0	0	6
Hrytsyna Olha	0	0	4	0	0	0	0
Kocifaj Miroslav	0	0	17	0	0	0	1
Kómar Ladislav	0	0	8	0	0	0	0
Matiašovský Peter	0	0	0	0	0	0	10
Palou Martin-Tchingnabé	2	0	32	0	0	0	0
Petržala Jaromír	0	0	2	0	0	0	0
Repka Miroslav	0	0	2	0	0	0	0
Sátor Ladislav	0	0	2	0	0	0	0
Sládek Vladimír	0	0	16	0	0	0	0
Slaný Michal	0	0	7	0	0	0	0
<b>Spolu</b>	<b>2</b>	<b>0</b>	<b>112</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>

## 2.11. Iné informácie k vedecko-výskumnej činnosti.

### 3. Medzinárodná vedecká spolupráca

#### 3.1. Medzinárodné vedecké podujatia

**3.1.1. Medzinárodné vedecké podujatia, ktoré organizácia SAV organizovala v roku 2023 alebo sa na ich organizácii podieľala, s vyhodnotením vedeckého a spoločenského prínosu podujatia**

**3.1.2. Medzinárodné vedecké podujatia, ktoré usporiada organizácia SAV v roku 2024 (anglický a slovenský názov podujatia, miesto a termín konania, meno, telefónne číslo a e-mail zodpovedného pracovníka)**

**3.1.3. Počet pracovníkov v programových a organizačných výboroch medzinárodných konferencií**

Tabuľka 3a Programové a organizačné výbory medzinárodných konferencií

Meno pracovníka	Programový	Organizačný	Programový i organizačný
Čekon Miroslav	2	0	0
Hrytsyna Olha	2	0	0
Sládek Vladimír	2	0	0
Sládek Ján	1	0	0
Palou Martin-T.	1	0	1
<b>Spolu</b>	7	0	0

#### 3.2. Členstvo a funkcie v medzinárodných orgánoch

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

doc. Ing. Miroslav Čekon, PhD.

International Building Performance Simulation Association IBPSA-SK Affiliate (funkcia: člen)

International Association of Building Physics (IABP) (funkcia: člen)

Ing. Jakub Čurpek, PhD.

IBPSA - International Building Performance Simulation Association (funkcia: IBPSA-Slovakia Representative)

International Association of Building Physics (IABP) (funkcia: Člen)

Mgr. Miroslav Kocifaj, DrSc.

International Astronomical Union (funkcia: člen)

International Solar Energy Society (ISES) (funkcia: člen {silver member})

Optical Society of America (OSA) (funkcia: člen)

The Illuminating Engineering Society (funkcia: člen Sky Glow Committee)

Prof.Dr.Ing. Martin-Tchingnabé Palou

CIB- International Council for Research and Innovation in Building and Construction (funkcia: Člen)  
ICIC International Committee for Irradiated Concrete (funkcia: člen)

doc. Ing. Stanislav Darula, CSc.

CIB - International Council for Research and Innovation in Building and Construction (funkcia: W67 - člen)  
CIE - Commission Internationale de l' Eclairage (funkcia: Reprezentant SR v CIE Divízii 3)  
IBPSA – the International Building Performance Simulation Associati (funkcia: člen)  
TC 3-54: Revision of CIE 16-1970: Daylight (funkcia: člen)

Ing. Ladislav Sátor, PhD.

Verejný zbor Maďarskej akadémie vied (funkcia: člen)

Prof. Ing. Ján Sládek, DrSc.

Central European Assoc. for Computational Mechanics (funkcia: člen)  
Int. Soc. Comput. Eng. & Sciences (ICCES) (funkcia: člen)

Prof. RNDr. Vladimír Sládek, DrSc.

Central European Assoc. for Computational Mechanics (funkcia: člen)  
International Society for Boundary Elements (funkcia: člen )

Dr. Stefan Wallner, BSc MSc

Austrian Society for Astronomy and Astrophysics (funkcia: Executive Board Member)  
International Astronomical Union (funkcia: Junior Member)

**3.3. Účast' expertov na hodnotení medzinárodných projektov (EÚ RP, ESF a iných)**

Tabuľka 3b Experti hodnotiaci medzinárodné projekty

Meno pracovníka	Typ programu/projektu/výzvy	Počet hodnotených projektov
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**3.4. 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 A-5.  
Prehľad a údaje o medzinárodných projektoch sú uvedené v kapitole 2 a Prílohe A-2.*

## **4. Aplikácia výsledkov výskumu v praxi**

### **4.1. Výsledky výskumu organizácie aplikované v technologickej a všeobecnej spoločenskej praxi**

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

*Zadávateľ výskumného kontraktu:* Premac, spol. s r.o.,

*Názov/účel kontraktového výskumu:* Vyhodnocovanie záznamov IČ organických materiálov

*Dobu riešenia:* 7/2023

*Finančný prínos pre organizáciu:* 150 €

*Zadávateľ výskumného kontraktu:* RHP-Technology GmbH

*Názov/účel kontraktového výskumu:* Charakterizácia pórovej štruktúry materiálov

*Dobu riešenia:* 5/2023

*Finančný prínos pre organizáciu:* 2 600 €

*Zadávateľ výskumného kontraktu:* VUCHT,a.s.,

*Názov/účel kontraktového výskumu:* Optimalizácia mletia vápenca na frakciu 8-16 mm

*Dobu riešenia:* 3/2023

*Finančný prínos pre organizáciu:* 1200 €

*Zadávateľ výskumného kontraktu:* Heliobus AG, St. Gallen, Švajčiarsko

*Názov/účel kontraktového výskumu:* Výpočet interiérového osvetlenia zrkadlovými šachtami

*Dobu riešenia:* 3/2023 – 12/2023

*Finančný prínos pre organizáciu:* 7800 €

#### **4.3. Iné formy aplikácie výsledkov výskumu a využitia odbornosti**

Účasť vedeckého pracovníka v pracovnej skupine, pracujúcej na pôde národnej TK 123, ktorá menila a dopĺňala STN EN 206+A2, ktorá nahrádza STN EN 206/NA z decembra 2015 v celom rozsahu.

## 5. Doktorandské štúdium a pedagogická činnosť

### 5.1. Údaje o doktorandskom štúdiu

Tabuľka 5a Počet doktorandov v roku 2023

Forma	Počet k 31.12.2023				Počet doktorandov po doktorandskej skúške		Počet ukončených doktorantúr v r. 2023					
							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	2	2	1	1	0	1	0	0	0	0	0	0
Denná z iných zdrojov	0	0	0	0	0	0	0	0	0	0	0	0
Externá	0	0	0	0	0	0	0	0	0	0	0	0
Spolu	2	2	1	1	0	1	0	0	0	0	0	0
Z toho zahraničných	1	0	1	0	0	0	0	0	0	0	0	0
Súhrn	4		2		1		0		0		0	

Uvádzajte len doktorandov organizácie ako externej vzdelávacej inštitúcie.

Riadok „Spolu“ je súčtom troch riadkov nad ním. Každá bunka v riadku „Súhrn“ vyjadruje celkový počet doktorandov (mužov a žien spolu), čiže je súčtom príslušných dvoch buniek z riadku „Spolu“. V stĺpci „Počet doktorandov po doktorandskej skúške“ sa uvádza počet doktorandov, ktorí počas roku 2023 boli aspoň 1 deň doktorandami po doktorandskej skúške. Sú číselne zahrnutí aj v predchádzajúcich stĺpcoch.

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

### 5.2. Zmena formy doktorandského štúdia

Tabuľka 5b 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	0	0	0	0	0	0

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

Tabuľka 5c Menný zoznam ukončených doktorandov v roku 2023 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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#### 5.4. Zoznam doktorandov, ktorí ukončili doktorandské štúdium úspešnou obhajobou v nadštandardnej dĺžke štúdia

Tabuľka 5d Menný zoznam ukončených doktorandov v roku 2023 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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#### 5.5. Uplatnenie absolventov doktorandského štúdia

Tabuľka 5e Prehľad uplatnenia absolventov doktorandského štúdia

Počet absolventov PhD. štúdia v roku 2023 (obhajoba leto 2023)	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-1.

## 5.6. Medzinárodné doktorandské štúdium

Tabuľka 5f Počet študentov v medzinárodných programoch doktorandského štúdia

Cotutelle	Co-direction	Iné	Zahraniční doktorandi štátne občianstvo/počet
0	0	1	SYR/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.*

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

Tabuľka 5g Zoznam študijných odborov, na ktoré má ústav uzatvorenú rámcovú dohodu, s uvedením univerzity/vysokej školy a fakulty, kde sa doktorandský študijný program uskutočňuje

Názov študijného odboru (ŠO)	Číslo ŠO	Názov doktorandského študijného programu	Doktorandské štúdium uskutočňované na (univerzita/vysoká škola a fakulta)
Chemické inžinierstvo a technológie	2820	Anorganická technológia a materiály	FCHPT STU Bratislava
Stavebníctvo	3659	Stavebníctvo	SvF STU Bratislava
Stavebníctvo	3659	Stavebníctvo	SvF ŽU Žilina

*Názov a číslo študijného odboru vyplňte/vyberte podľa aktuálne platného zoznamu študijných odborov*

*<https://www.portalvs.sk/sk/studijne-odbory?from=menu1>. Názov doktorandského študijného programu v stĺpci 3 je potrebné vložiť ako voľný text.*

*Do 31. 8. 2023 študujú študenti doktorandského štúdia zaradení do študijných programov podľa zoznamu MŠVVaŠ, platného do 1. 9. 2019. Pre týchto študentov je potrebné napísať názov programu ako voľný text do stĺpca 3 a nevyplňovať stĺpce 1 a 2.*

Tabuľka 5h Účasť na pedagogickom procese

Menný prehľad pracovníkov, ktorí boli menovaní do odborových komisií pre doktorandské štúdium	Menný prehľad pracovníkov, ktorí pôsobili ako členovia vedeckých rád univerzít, správnych rád univerzít a fakúlt	Menný prehľad pracovníkov, ktorí získali vyššiu vedeckú, pedagogickú hodnotu alebo vyšší kvalifikačný stupeň
doc. Ing. Miroslav Čekon, PhD. (stavebníctvo)	Ing. Peter Matiašovský, CSc. (Slovenská technická univerzita v Bratislave)	Ing. Michal Slaný, PhD. (IIa)
Mgr. Miroslav Kocifaj, DrSc. (meteorológia a klimatológia)	Ing. Peter Matiašovský, CSc. (Stavebná fakulta STU)	Ing. Aleš Nečas, PhD. (PhD., Materiálovotechnologická fakulta STU v Trnave)
Ing. Peter Matiašovský, CSc. (stavebníctvo)	Prof.Dr.Ing. Martin-Tchingnabé Palou (Slovenská technická univerzita v Bratislave)	Ing. Matúš Žemlička, PhD. (IIa)
Prof.Dr.Ing. Martin-Tchingnabé Palou (anorganická technológia a materiály)	Prof.Dr.Ing. Martin-Tchingnabé Palou (Stavebná fakulta STU)	
Prof.Dr.Ing. Martin-Tchingnabé Palou (stavebníctvo)	doc. Ing. Stanislav Darula, CSc. (Stavebná fakulta TUKE)	

Prof.Dr.Ing. Martin-Tchingnabé Palou (odbor v zahraničí)	Mgr. Hector Antonio Solano Lamphar, PhD. (UNAM, Mexico City, Mexico)	
doc. Ing. Stanislav Darula, CSc. (stavebníctvo)		
Prof. Ing. Ján Sládek, DrSc. (aplikovaná mechanika)		
Prof. RNDr. Vladimír Sládek, DrSc. (aplikovaná mechanika)		
Prof. RNDr. Vladimír Sládek, DrSc. (numerická analýza a vedecko-technické výpočty)		

## 5.8. Údaje o pedagogickej činnosti

Tabuľka 5i Prednášky a cvičenia vedené v roku 2023

PEDAGOGICKÁ ČINNOSŤ	Prednášky		Cvičenia a semináre	
	doma	v zahraničí	doma	v zahraničí
Počet prednášateľov alebo vedúcich cvičení	4	3	4	1
Celkový počet hodín v r. 2023	124	82	169	52

Prehľad prednášateľov predmetov a vedúcich cvičení, s uvedením názvu predmetu, úväzku, katedry, fakulty, univerzity/vysokej školy je uvedený v prílohe A-4.

Tabuľka 5j Aktivity pracovníkov na VŠ

1.	Počet pracovníkov, ktorí pôsobili ako vedúci alebo konzultanti diplomových a bakalárskych prác	3
2.	Počet vedených alebo konzultovaných diplomových a bakalárskych prác	4
3.	Počet pracovníkov, ktorí pôsobili ako škoolitelia doktorandov (PhD.)	2
4.	Počet školených doktorandov (aj pre iné inštitúcie)	6
5.	Počet oponovaných dizertačných a habilitačných prác	1
6.	Počet pracovníkov, ktorí oponovali dizertačné a habilitačné práce	1
7.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby DrSc. prác	0
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	1

## 5.9. Iné dôležité informácie k pedagogickej činnosti

Úspešný projekt Doktograf: APP0459: Štúdium vlastností nízko-emisných samozhutniteľných betónov s náhradami cementárskeho slinku s využitím recyklovaného plniva. Zodpovedný riešiteľ: Ing. Peter Cziráč

## **6. Zmluvná spolupráca s univerzitami/vysokými školami a inými subjektmi vedy a výskumu**

*Pozn.: Uvádzajte formy spolupráce a aktivity, ktoré nie sú uvedené v kapitolách 2, 3, 4, 5.*

### **6.1. Spoločné pracoviská organizácie**

#### **6.1.1. Spolupráca s univerzitami/VŠ (fakultami)**

Fakulta chemickej a potravinárskej technológie, STU Bratislava: doktorandské štúdium

Stavebná fakulta, STU Bratislava: doktorandské štúdium

Stavebná fakulta, Žilinská univerzita: doktorandské štúdium

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

#### **6.1.2. Spoločné pracoviská s inými organizáciami SAV**

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

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

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

### **6.3. Spoločné projekty s univerzitami a ostatnými inštitúciami mimo SAV**

Názov projektu: Globálna charakterizácia svetelného znečistenia

Agentúra a číslo projektu: APVV-18-0014

Spolupracujúce inštitúcie: Fakulta matematiky, fyziky a informatiky UK

Koordinátor projektu: Miroslav Kocifaj

Obdobie riešenia: 1.7.2019-30.6.2023

Názov projektu: Komplexný model šírenia svetelného znečistenia do okolitého prostredia

Agentúra a číslo projektu: APVV-22-0020

Spolupracujúce inštitúcie: Fakulta matematiky, fyziky a informatiky UK

Koordinátor projektu: Miroslav Kocifaj

Obdobie riešenia: 1.7.2023-30.6.2026

Názov projektu: Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry

Agentúra a číslo projektu: VEGA 2/0010/20

Spolupracujúce inštitúcie: Fakulta matematiky, fyziky a informatiky UK

Koordinátor projektu: Miroslav Kocifaj

Obdobie riešenia: 1.1.2020-31.12.2023

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

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

## 7. Vedecko-organizačné a popularizačné aktivity

### 7.1. Vedecko-popularizačná činnosť

Tabuľka 7a Súhrnné počty vedecko-popularizačných činností organizácie SAV

Typ	Počet	Typ	Počet	Typ	Počet
prednášky/besedy	4	tlač	0	TV	0
rozhlás	0	internet	3	exkurzie	1
publikácie	0	multimediálne nosiče	0	dokumentárne filmy	0
iné	2				

### 7.2. Vedecko-organizačná činnosť

Tabuľka 7b Vedecko-organizačná činnosť

Názov podujatia	Domáca/ medzinárodná	Miesto	Dátum konania	Počet účastníkov
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### 7.3. Účasť na výstavách

### 7.4. Účasť v programových a organizačných výboroch národných konferencií

Tabuľka 7c Programové a organizačné výbory národných konferencií

Meno pracovníka	Programový	Organizačný	Programový i organizačný
Spolu			

### 7.5. Členstvo v redakčných radách časopisov

doc. Ing. Miroslav Čekon, PhD.

Advances in Building Energy Research (Taylor and Francis) (funkcia: člen)

Mgr. Olha Hrytsyna, DrSc.

Physico-Mathematical Modelling and Informational Technologies (funkcia: členka redakčnej rady)

Mgr. Miroslav Kocifaj, DrSc.

Journal of Quantitative Spectroscopy and Radiative Transfer (funkcia: Guest editor)  
Remote Sensing (funkcia: Editor { Atmosphere & Urban remote sensing })

Prof.Dr.Ing. Martin-Tchingnabé Palou

Ceramics-Silikaty (funkcia: Editorial Board)  
Journal of Thermal Analysis and Calorimetry (funkcia: Editorial Board )

doc. Ing. Stanislav Darula, CSc.

VTs News (funkcia: člen redakčnej rady)

Lighting Research and Technology, International Advisory Board, člen

Prof. Ing. Ján Sládek, DrSc.

Electronic Jour. Boundary Elements (funkcia: člen)

Jour. Computational and Applied Mechanics (funkcia: člen)

Journal of Multiscale Modelling (funkcia: člen)

SDHM-Structural Durability and Health Monitoring Journal (funkcia: člen)

Prof. RNDr. Vladimír Sládek, DrSc.

Communications in Numerical Analysis (funkcia: člen redakčnej rady)

Composites Part C (funkcia: člen redakčnej rady)

Int. Jour. Engineering Analysis with Boundary Elements (funkcia: Editor)

Journal of Industrial Mathematics and Computational Mechanics (funkcia: člen redakčnej rady)

Newsletter of the Int. Soc. of Boundary Element Methods (funkcia: člen redakčnej rady)

Series Advances in Boundary Elements (funkcia: člen edičnej rady)

Ing. Michal Slaný, PhD.

Minerals (funkcia: Guest editor)

## **7.6. Činnosť v domácich vedeckých spoločnostiach**

doc. Ing. Miroslav Čekon, PhD.

Slovenská spoločnosť pre techniku prostredia (SSTP) (funkcia: člen odbornej sekcie OS 16  
Simulácie potrieb energií v budovách)

Mgr. Miroslav Kocifaj, DrSc.

CIE Div5, TC 5-28 (funkcia: člen)

Slovenská astronomická spoločnosť (funkcia: člen)

Ing. Peter Matiašovský, CSc.

Slovenská bioklimatologická spoločnosť pri SAV (funkcia: člen)

Slovenská fyzikálna spoločnosť pri SAV (funkcia: člen)

Slovenská spoločnosť pre techniku prostredia (funkcia: člen)

Zväz slovenských vedeckotechnických spoločností (funkcia: Auditor EUR-ACE akreditačného centra ZSVTS)

Prof.Dr.Ing. Martin-Tchingnabé Palou

CO-SM Qualiform s.r.o. (funkcia: člen)

Technická normalizácia ÚNMS, TK40 (funkcia: Predseda komisie)

doc. Ing. Stanislav Darula, CSc.

VTV pri ZSVTS, člen

TK 108 Svetlo a osvetlenie pri ÚNMS, predseda

SNK CIE (funkcia: člen predsedníctva)

IBPSA SK, člen

SSTP - Slovenská spoločnosť pre techniku prostredia (funkcia: člen)

SSTS-Slovenská svetelnotechnická spoločnosť (funkcia: tajomník)

ZSVTS (funkcia: člen Rady)

Ing. Ladislav Sátor, PhD.

Slovenská spoločnosť pre mechaniku (funkcia: člen)

Prof. Ing. Ján Sládek, DrSc.

Slovenska spoločnosť pre mechaniku (funkcia: člen)

Prof. RNDr. Vladimír Sládek, DrSc.

Slovenská spoločnosť pre mechaniku (funkcia: člen hlav. výboru)

Dr. Stefan Wallner, BSc MSc

Burgenlaendischer Arbeitskreis Astronomie (funkcia: chairman)

IAU National Outreach Committee Austria (funkcia: Member)

#### **7.7. Iné dôležité informácie o vedecko-organizačných a popularizačných aktivitách**

Ústav stavebníctva a architektúry SAV, v.v.i. sa v roku 2023 zúčastnil troch významných podujatí zameraných na popularizáciu a propagáciu vedy a výskumu.

1. Víkend so SAV – 23.-24. 6. 2023 bolo podujatie zamerané na prezentáciu SAV pri príležitosti 70. výročia jeho založenia. Ústav zastupovali ôsmi pracovníci, ktorí počas dvoch dní prezentovali širokej verejnosti výsledky svojho výskumu. Záujem o stánok ústavu bol predovšetkým počas druhého dňa podujatia veľmi veľký.
2. Európska Noc Výskumníkov – 29. 9. 2023 bolo podujatie celoeurópskeho významu. Ústav reprezentovali siedmi pracovníci, ktorí do noci prezentovali zameranie a výsledky nášho pracoviska širokej verejnosti.
3. Týždeň vedy a techniky – Deň otvorených dverí 9. 11. 2023 – na pracovisko sa podarilo aktívnou agitáciou prilákať viac ako 120 študentov z rôznych stredných a vysokých škôl. Pracovníci viedli prednášky a diskusie o zameraní svojho výskumu, uskutočnila sa exkurzia v laboratóriách a vo Výstavnej sieni ústavu mali návštevníci možnosť prezrieť si výstavu s názvom “Stavebný výskum v minulosti a dnes”. Do podujatia sa zapojilo sedem pracovníkov ústavu.



## **8. Aktivity pre Národnú radu SR, vládu SR, ústredné orgány štátnej správy SR a iné inštitúcie**

### **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.

<b>Meno pracovníka</b>	<b>Názov orgánu</b>	<b>Funkcia</b>
Ing. Matúš Zemlička, PhD.	TK č. 123: Výroba, skúšanie betónu a zhotovovanie betónových konštrukcií; Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky	člen TK 123

### **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

<b>Meno pracovníka</b>	<b>Názov orgánu</b>	<b>Funkcia</b>
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### **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. Aktivity v orgánoch SAV**

### **9.1. Členstvo vo Výbore Snemu SAV**

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

### **9.3. Členstvo v komisiách SAV**

### **9.4. Členstvo v orgánoch VEGA**

doc. Ing. Miroslav Čekon, PhD.

- komisia č. 6 pre stavebné inžinierstvo (stavebníctvo, dopravu a geodéziu) a environmentálne inžinierstvo vrátane baníctva, hutníctva a vodohospodárskych vied (člen)

Mgr. Miroslav Kocifaj, DrSc.

- komisia č. 6 pre stavebné inžinierstvo (stavebníctvo, dopravu a geodéziu) a environmentálne inžinierstvo vrátane baníctva, hutníctva a vodohospodárskych vied (člen)

RNDr. Ladislav Kómar, PhD.

- komisia č. 6 pre stavebné inžinierstvo (stavebníctvo, dopravu a geodéziu) a environmentálne inžinierstvo vrátane baníctva, hutníctva a vodohospodárskych vied (člen)

Ing. Miroslav Repka, PhD.

- komisia č. 6 pre stavebné inžinierstvo (stavebníctvo, dopravu a geodéziu) a environmentálne inžinierstvo vrátane baníctva, hutníctva a vodohospodárskych vied (člen)

Prof. RNDr. Vladimír Sládek, DrSc.

- komisia č.6 pre stavebné inžinierstvo (stavebníctvo, dopravu a geodéziu) a environmentálne inžinierstvo vrátane baníctva a vodohospodárskych vied (člen)

## 10. Starostlivosť o ľudské zdroje, rodovú rovnosť, pracovné a sociálne podmienky zamestnancov a uplatňovanie ich práv

### 10.1. Uplatňovanie princípov stratégie ľudských zdrojov HRS4R

Základnými cieľmi projektu Stratégia ľudských zdrojov vo výskume (HRS4R) je zvýšiť kvalitu v riadení ľudských zdrojov, možnosť prijímať viac zahraničných výskumníkov a výskumníček a stať sa atraktívnym zamestnávateľom v európskom výskumnom priestore. Dôkazom plnenia tejto stratégie je aj fakt, že na ústave pôsobí 7 zahraničných vedcov a jeden zahraničný doktorand, čo zodpovedá 1/4 všetkých vedeckých a odborných zamestnancov.

Základným krokom pre vlastnú stratégiu ľudských zdrojov je vytvorenie podmienok pre implementáciu Európskej charty výskumných pracovníkov a Kódexu správania pre nábor výskumných pracovníkov v súlade s odporúčaním Európskej komisie z 11. marca 2005 (2005/251/ES). Ústav stavebníctva a architektúry SAV sa plne hlási k zásadám, na ktorých sú tieto dokumenty postavené.

V rámci implementácie týchto opatrení pristupuje pracovisko individuálne k potrebám zamestnancov. Ako súčasť agendy HRS4R dáva rovnaké príležitosti pri prijímaní do zamestnania, uľahčuje integráciu do vedeckého života, po vzájomnej dohode umožňuje napr. home office, čiastočné úväzky alebo naopak neodďaľovanie plného úväzku.

*Uved'te stručnú charakteristiku a hodnotenie aktivít v oblasti HRS4R.*

### 10.2. Informácie o aktivitách súvisiacich s uplatňovaním princípov rodovej rovnosti

Ústav stavebníctva a architektúry SAV, v.v.i. sa hlási k Plánu rodovej rovnosti Slovenskej akadémie vied, ktorý bol prijatý Predsedníctvom SAV v decembri 2021. V súlade s Etickým kódexom SAV nerobí vedenie ústavu žiadne rozdiely pri pracovnej náplni, kariérnom raste, či odmeňovaní pracovníkov na základe rodového rozdielu.

V roku 2023 ženy tvorili 30 % z celkového počtu všetkých zamestnancov ústavu (33 mužov a 13 žien). V prípade vedeckých a odborných pozícií mali ženy 15 % zastúpenie. Z pohľadu doktorandského štúdia majú ženy 50% zastúpenie. V roku 2023 boli prijatí dvaja noví doktorandi, v pomere mužov a žien 1:1. Ústav stavebníctva a architektúry SAV, v.v.i. má snahu o rodovo rovnomerné zastúpenie aj v oblasti riadenia. V roku 2023 síce klesol počet ženských vedúcich oddelení o 1 a tým aj podiel žien vo vedení ústavu avšak vedenie vyvíja snahu na podporu rodovej rovnosti. Sústreďuje sa na oblasti kariérneho rastu (zvyšovanie vedeckej kvalifikácie, získavanie projektov), ale aj na zosúladzovanie pracovného a súkromného života, i podporu vzdelávania v rámci doktorandského štúdia.

Rodová štruktúra pracovníkov ústavu je nasledovná:

- Vedúci oddelení: 75 % mužov a 25 % žien
- THS: 86 % žien a 14% mužov
- Oddelenie aplikovanej mechaniky: 87,5% mužov a 12,5 % žien
- Oddelenie optiky a termofyziky: 100 % mužov a 0% žien
- Oddelenie materiálov a konštrukcií: 75% mužov a 25% žien
- Vedenie Ústavu: 83% mužov a 17% žien
- Doktorandské štúdium: 50% mužov a 50% žien

*Stručné hodnotenie stavu uplatňovania princípov rodovej rovnosti v organizácii, súvisiace aktivity a opatrenia, návrhy na aktualizáciu Plánu rodovej rovnosti SAV.*

### 10.2.1. Rodová skladba hlavných riešiteľov (vedúcich) projektov

*Prípadný stručný komentár ako úvod (nepovinný).*

Tabuľka 10a Rodová skladba hlavných riešiteľov domácich projektov

ŠTRUKTÚRA PROJEKTOV	Organizácia SAV je nositeľom projektu			Organizácia SAV je zmluvným partnerom		
	Počet	Hlavný riešiteľ		Počet	Hlavný riešiteľ za organizáciu	
		Muž	Žena		Muž	Žena
<b>1. Projekty VEGA</b>	4	4	0	0	0	0
<b>2. Projekty APVV</b>	5	5	0	0	0	0
<b>3. Projekty EŠIF/OP ŠF, Plán obnovy EÚ</b>	0	0	0	0	0	0
<b>4. Projekty SASPRO, MoRePro, IMPULZ</b>	2	2	0	0	0	0
<b>5. Iné projekty (FM EHP, Vedecko-technické projekty, na objednávku rezortov a pod.)</b>	0	0	0	0	0	0

Tabuľka 10b Rodová skladba hlavných riešiteľov medzinárodných projektov

ŠTRUKTÚRA PROJEKTOV	Organizácia SAV je nositeľom projektu			Organizácia SAV je zmluvným partnerom		
	Počet	Hlavný riešiteľ		Počet	Hlavný riešiteľ za organizáciu	
		Muž	Žena		Muž	Žena
<b>1. Projekty Horizont 2020 a Horizont Európa</b>	0	0	0	0	0	0
<b>2. Projekty ERA.NET, ESA, JRP</b>	0	0	0	0	0	0
<b>3. Projekty COST</b>	0	0	0	1	1	0

<b>4. Projekty EUREKA, NATO, UNESCO, CERN, IAEA, IVF, ERDF a iné</b>	0	0	0	1	1	0
<b>5. Projekty v rámci medzivládnych dohôd</b>	0	0	0	0	0	0
<b>6. Bilaterálne projekty MAD, Mobility, Open Mobility</b>	0	0	0	0	0	0
<b>7. Bilaterálne projekty ostatné</b>	0	0	0	0	0	0
<b>8. Podpora MVTs z národných zdrojov (SAV, APVV a iné)</b>	0	0	0	0	0	0
<b>9. SAS-UPJŠ ERC Visiting Fellowship Grants</b>	0	0	0	0	0	0
<b>10. Iné projekty</b>	0	0	0	0	0	0

#### 10.2.2. Výskum zameraný na rodovú problematiku

*Uvedte stručné, základné informácie o projektoch orientovaných na rodovú problematiku, ak organizácia takýto výskum realizuje. Informácie o financovaní a výsledkoch takýchto projektov sa nachádzajú v kapitole 2 a v prílohe A-3.*

#### 10.3. Informácie o pracovných a sociálnych podmienkach zamestnancov a uplatňovaní ich práv

1. Vedenie netoleruje rodovo podmienené šikanovanie, násilie a sexuálne obťažovanie. Prípady takéhoto správania sa na našom pracovisku zatiaľ nevyskytli.
2. Vedenie ústavu dlhodobo podporuje rovnováhu medzi pracovným a rodinným životom, vrátane podpory využívania jasíel a materských škôl, športových štruktúr a športových podujatí, spoločenských aktivít.
3. Partikulárnosti rodové vlastnosti sú pravidelne využívané v aktivitách ústavu, napr. v oblasti popularizácie, výskumu a pedagogiky.

*Uvedte stručné, základné informácie k problematike.*

## 11. Organizačné a právne zmeny v organizácii

### 11.1. Informácie o vnútorných organizačných zmenách

*Uvedte stručné, základné informácie k problematike.*

### 11.2. Zmeny zakladacej listiny, vnútorných predpisov organizácie alebo zakladateľa

Dňa 27.11.2023 bol schválený Dodatok č. 2 k Zakladacej listine v nasledovnom znení:

V článku IV odsek 1 zakladacej listiny Ústavu stavebníctva a architektúry Slovenskej akadémie vied, verejnej výskumnej inštitúcie, č. 06160/2021 zo dňa 15. 11. 2021 v znení neskorších zmien (ďalej len „zakladacia listina“) sa upravujú názvy číselníka odborov vedy a techniky na základe Smernice MSVVaS SR č. 55/2022 o sústave odborov vedy a techniky a číselníku odborov vedy a techniky, a to tak, že pôvodné znenie odseku 1 sa nahrádza nasledovným znením:

*„(1) Prevažujúcou hlavnou činnosťou organizácie je uskutočňovanie výskumu v odboroch vedy a techniky (ďalej tiež „odbornosti“): stavebné inžinierstvo (vrátane dopravy) (020100), technológie a manažérstvo stavieb (020113), inžinierske konštrukcie a dopravné stavby (020107), pozemné stavby (020110), strojárstvo (020300), aplikovaná mechanika (020301), náuka o nekovových materiáloch a stavebných hmotách (020311), chemické inžinierstvo (020400), anorganická technológia a materiály (020401), fyzikálne vedy (010300), kvantová elektronika a optika (010310), environmentálna fyzika (010304) a ostatné odbory fyzikálnych vied (010399).*

(2) V článku IV v odseku 3 zakladacej listiny sa písmeno a) nahrádza nasledovným znením:

*„ a) činnosti:*

*i) uskutočňovania výskumu,*

*ii) zabezpečovania a správy infraštruktúry výskumu a vývoja,*

*iii) získavania, spracúvania a šírenia informácií z oblasti vedy a techniky a poznatkov z vlastného výskumu a vývoja a*

*iv) spolupráce v oblasti vedy a techniky s vysokými školami, ostatnými právnickými osobami uskutočňujúcimi výskum a vývoj a s podnikateľmi, v odboroch:*

*stavebné inžinierstvo (vrátane dopravy) (020100), technológie a manažérstvo stavieb (020113), inžinierske konštrukcie a dopravné stavby (020107), pozemné stavby (020110), strojárstvo (020300), aplikovaná mechanika (020301), náuka o nekovových materiáloch a stavebných hmotách (020311), chemické inžinierstvo (020400), anorganická technológia a materiály (020401), fyzikálne vedy (010300), kvantová elektronika a optika (010310), environmentálna fyzika (010304) a ostatné odbory fyzikálnych vied (010399); a to na základe požiadaviek orgánov verejnej správy za podmienok podľa osobitných predpisov, "*

*Uvedte stručné, základné informácie k problematike.*

## 12. Činnosť knižnično-informačného pracoviska

### 12.1. Knižničný fond

Tabuľka 12a Knižničný fond

<b>Knižničné jednotky spolu</b>		89708
z toho	knihy a zviazané periodiká	79896
	audiovizuálne dokumenty	
	elektronické dokumenty (vrátane digitálnych)	
	mikroformy	
	iné špeciálne dokumenty - dizertácie, výskumné správy	10185
	Rukopisy, vzácne tlače	
Počet titulov dochádzajúcich periodík		1
z toho zahraničné periodiká		1
Ročný prírastok knižničných jednotiek		2
v tom	kúpou	2
	darom	
	výmenou	
	bezodplatným prevodom	
	náhradou	
Úbytky knižničných jednotiek		32
Knižničné jednotky spracované automatizovane		

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“.

## 12.2. Výpožičky a služby

Tabuľka 12b Výpožičky a služby

<b>Výpožičky spolu (riadok 1)</b>		586
v tom z r. 1	prezenčné výpožičky	8
	absenčné výpožičky	578
v tom z r. 1	odborná literatúra pre dospelých	523
	výpožičky periodík	63
MVS iným knižniciam		2
MVS z iných knižníc		12
MMVS iným knižniciam		
MMVS z iných knižníc		
Počet vypracovaných bibliografií		
Počet vypracovaných rešerší		

## 12.3. Používatelia

Tabuľka 12c Používatelia

Registrovaní používatelia	43
Návštevníci knižnice spolu (bez návštevníkov podujatí)	82

## 12.4. Iné údaje

Tabuľka 12d Iné údaje

On-line katalóg knižnice na internete ( 1=áno, 0=nie)	0
Náklady na nákup knižničného fondu v €	234,84

## 12.5. Iné informácie o knižničnej činnosti



### **13. Nadácie a fondy pri organizácii**

## **14. Realizácia Koncepcie dlhodobého rozvoja a Akčného plánu organizácie**

### **14.1. Odporúčania z posledného pravidelného (akreditačného) hodnotenia organizácií SAV**

Komisia medzinárodného panelu nás zaradila do kategórie B/C s nasledujúcim vysvetlením:

1. Na pracovisku existuje niekoľko vedcov, ktorí sú jasne viditeľní na úrovni EÚ; avšak mnohí stále nie sú viditeľní v medzinárodnom prostredí. Je potrebné vynaložiť viac úsilia pri vytváraní podmienok pre mladú generáciu, aby rástla a dosahovala vyššiu úroveň.
2. Panel dôrazne odporúča hľadať partnerov pre spoluprácu v podobných a synergických vedeckých odboroch medzi ostatnými akademickými ústavmi, s cieľom nájsť kľúčových partnerov a s nimi sa zamerať na významnejšie a ambicióznejšie výstupy.
3. Nová kancelária pre transfer technológií SAV by mala v budúcnosti aktívne využívať ako prostriedok pre dosahovanie vyšších výnosov.
4. Ústav by mal mať oveľa lepšie štruktúrovaný vzťah s medzinárodným poradným výborom (rodové vyváženie popredných odborníkov v danej oblasti) a mať nástroj na implementáciu jeho návrhov a rád.
5. Získavanie (príťahovanie) doktorandov a postdoktorandov zo zahraničia v rámci európskych programov, ako aj v rámci štipendijných fondov pridelených vládou SR (SAIA), medzivládne dohody si vyžadujú ambicióznosť a cielené stratégie.
6. Ústav sa musí viac zapájať do programov EÚ, čo si však vyžaduje aj aktívnu pomoc zo strany SAV pri poskytovaní náležitej podpory pri príprave návrhov, budovaní konzorcia, príprave grantov a písaní návrhov projektov.
7. Rodová rovnosť v rámci Ústavu si tiež vyžaduje silnú a nepretržitú pozornosť.

### **14.2. Hlavné body Akčného plánu organizácie a stav ich plnenia**

V nasledujúcich bodoch sú zhrnuté opatrenia vyplývajúce z Akčného plánu ktoré priamo reagujú na odporúčania medzinárodného panelu z poslednej akreditácie.

1. Na ústave pôsobilo v roku 2023 niekoľko významných vedcov, ktorý sú jasne viditeľní v Európskom vedeckom priestore a ktorí každým rokom zvyšujú kvalitu svojich publikačných výstupov publikovaním v prestížnych časopisoch (Nature, Science). Do publikačnej činnosti v renomovaných časopisoch sú zapájaní aj mladší vedeckí pracovníci, ktorí pracujú pod gesciou našich najlepších odborníkov. Sú tak postupne vedení k samostatným kvalitným publikačným výstupom a k vedeniu vlastných projektov. Ich scientometrické charakteristiky z roka na rok rastú. Ústav neformálne spolupracuje s mnohými poprednými vedeckými pracoviskami v zahraničí, dôkazom čoho sú mnohé spoločné publikácie vo významných vedeckých časopisoch. Vytvárajú sa tým podmienky pre mladšiu generáciu, aby rástla a dosahovala vyššiu úroveň tak, ako bolo odporúčané Akreditačnou komisiou.
2. Ústav stavebníctva a architektúry SAV, v.v.i. má jasnú víziu o spolupráci s ďalšími ústavmi podobného zamerania, ako aj s univerzitami, ktoré produkujú študentov v odboroch, ktoré sa na ústave rozvíjajú. V spolupráci so Stavebnou fakultou Žilinskej Univerzity sa zefektívnilo využívanie laboratórií a postupne sa obnovuje vybavenie, ktoré sa na ústave dlhšie nevyužívalo (veterný tunel, pulzátor). V spolupráci s univerzitami zapájame študentov I. a II. stupňa VŠ do vedeckých prác vo forme Študentskej vedeckej odbornej činnosti (ŠVOČ) a formou vedenia a konzultovania bakalárskych a diplomových prác ich pripravujeme na úlohu vedeckého

pracovníka. Naše špecializované prístrojové vybavenie sprístupňujeme partnerským organizáciám SAV a univerzitám, ako aj pre využitie v praxi.

3. ÚSTARCH SAV, v. v. i., má záujem zapájať sa do aktivít základného aj aplikovaného výskumu, poskytovať svoje personálne a priestorové možnosti, ako aj prístrojovú infraštruktúru subjektom vykonávajúcim vedu a výskum doma i v zahraničí. Spolupráca však musí byť postavená na spoločných vedeckých projektoch, nie na servise a firemných zákazkách. V tomto by mohla byť Kancelária pre transfer technológií viac nápomocná.
4. Zloženie medzinárodného poradného panelu sa nezmenilo, tvoria ho:
  - Dr. Zoltán Kolláth, Ass. prof, Eotvos Loránd University, Szombathely, Hungary
  - Dr. Robert Černý, prof, České vysoké učení technické v Praze, Czech Republic
  - Dr. Arnon Chaipanich, Ass. prof., Chiang Mai University, Thailand

V roku 2024 bude nutné personálne obnovenie a doplnenie medzinárodného poradného panelu aj na základe odporúčania Akreditačnej komisie. Bude nutné jeho aktívnejšie využívanie pri odborných konzultáciách v oblasti získavania doktorandov a postdoktorandov, pri propagácii nášho výskumu v zahraničí, ako aj pri hľadaní zahraničných partnerov pre Európske projekty.

5. Ústav stavebníctva a architektúry SAV, v.v.i. sa počtom zamestnancov radí medzi menšie ústavy, avšak ako uvádza Akreditačná komisia, zreteľne vidno výraznú snahu o rast a internacionalizáciu. Dôkazom toho je aj 25% podiel zahraničných vedeckých a odborných pracovníkov. Dvaja zahraniční vedci z Rakúska a Indie sú riešiteľmi projektov SASPRO, jeden zahraničný vedec z Mexika je štipendistom SAIA a prijatý bol jeden doktorand pôvodom zo Sýrie. V roku 2024 sa očakáva príchod ďalších zahraničných spolupracovníkov z Rakúska, Talianska a Indie. Je vidieť, že ústav zaznamenáva veľký záujem vedeckých pracovníkov zo zahraničia, pričom lákadlom sú pre nich významné vedecké kapacity, ktoré na ústave pôsobia a progresívne témy, ktoré sa na ústave riešia. Častým problémom ostáva slabé financovanie kvalitných odborníkov zo zahraničia, nakoľko štipendijný program sa nemôžu rovnať podpore, akú kvalitní vedci dostávajú v zahraničí.

V rámci doktorandského štúdia sa ponúкло 9 tém dizertačných prác a nadviazala sa intenzívna spolupráca vo vzdelávaní so Stavebnou fakultou Žilinskej Univerzity, odkiaľ bola prijatá jedna doktorandka. V roku 2023 mal ústav 4 doktorandov, čo je posun k lepšiemu oproti predchádzajúcim rokom. V roku 2024 pribudne garant v odbore optika, ktorý má priznaný titul DrSc.

6. Ústav stavebníctva a architektúry SAV, v.v.i. sa pravidelne zapája do výziev na podávanie medzinárodných projektov. V roku 2023 bol získaný európsky projekt „INTERREG - Circular and digital recovery of central Europe construction and building sektor“ v spolupráci so 14 inštitúciami z 8 európskych krajín. Ústav sa tiež zapojil do projektu “COST - International network for harmonization of atmospheric aerosol retrievals from ground based photometers” v súčinnosti s 10 krajinami EÚ. Pracovisko taktiež participuje na dvoch európskych projektoch radených do 5RP: Research Fund for Coal and Steel – “New technology for hydrogen and geopolymer composites production from post-mining waste” spolu s dvoma ďalšími krajinami a “The birth of solar systems (PLANETS)” v spolupráci s 10 krajinami EÚ. Celkovo tak participuje na 4 EU projektoch + 2 projektoch SASPRO. Oproti minulosti ide o nárast počtu medzinárodných projektov, čo bolo odporúčané Akreditačnou komisiou.

Ústav je pracoviskom základného výskumu a jej poprední vedeckí pracovníci dlhodobo spolupracujú s vedcami z renomovaných vedeckých inštitúcií vo svete, napríklad:

- Catedras CONACYT, Mexiko
- University Cégep de Sherbrooke, Kanada
- University of Vienna, Rakúsko

- US Army Research Lab, USA,
- Naresuan University, Thailand.
- School of Aerospace, Xi'an Jiaotong University, Xi'an, China
- Materials Sciences and Strength of Materials, University of Stuttgart, Germany
- Queen Mary College University of London, UK
- Imperial College University of London, UK
- Faculty of Mechanical Engineering, Brno University of Technology
- Hubei Key Laboratory of Engin. Structural Analysis and Safety Assessment, Wuhan, China
- Lomonosov University Moscow, Russia
- Department of Mechanical & Aerospace Engineering, Carleton University, Ottawa, Canada
- Department of Civil Engineering, University of Akron, Akron, USA
- Texas Tech University, Lubbock, USA
- National Academy of Sciences of Ukraine,
- Czech Technical University in Prague/Faculty of Civil Engineering
- Centre for Energy Research, Hungarian Academy of Sciences
- Institute of Fundamental Technological Research, Polish Academy of Sciences (IPPT PAN)
- Yonsei University, KR
- VUT Brno, ČR
- Výzkumný ústav stavebních hmot, Brno, ČR

Výsledkom spolupráce so zahraničím sú publikácie v renomovaných periodikách. Cieľom vedenia ústavu je preto plná podpora kvalitných publikačných výstupov s prihliadnutím na impakt faktor daného periodika a zaradenie do kvartilu s najvyšším hodnotením. Zo 44 CC publikácií v roku 2023 pripadá 27 do kategórie Q1 (61 %) a 17 do kategórie Q2 (39 %), podľa SJR z r. 2022. Teda 100% publikovaných karentovaných prác spadá do Q1 a Q2, čo je oproti minulému roku zlepšenie, kedy podiel Q1 a Q2 predstavoval 90%.

7. Rodová rovnosť nie je len základným ľudským právom, ale aj základným pilierom pre mierové prosperujúce spoločenstvo a udržateľný rozvoj. Ženy aj muži majú mať prístup k rovnakým príležitostiam, zodpovednostiam a aktivitám a majú sa hodnotiť rovnako (rodová rovnosť). Na druhej strane sú že ženy a muži rozdielni a schopnosti a vlastnosti žien sú rovnako hodnotné ako partikulárne vlastnosti mužov (rodová rovnocennosť). Preto je nevyhnutné spravodlivé zaobchádzanie s oboma pohlaviami, ale aj zaobchádzanie, ktoré je síce rozdielne, ale zároveň primerané z hľadiska práv, výhod, povinností a možností. Tieto dva koncepty sa navzájom dopĺňajú, avšak rozdielne potreby žien a mužov treba uznávať a podporovať rovnakým spôsobom. Preto sa na Ústave stavebníctva a architektúry SAV, v.v.i. plne hlásime k Plánu rodovej rovnosti Slovenskej akadémie vied, ktorý bol prijatý Predsedníctvom SAV v decembri 2021. Tento document predstavuje súbor cieľov a opatrení, pri ktorých majú ženy a muži, vedkyne a vedci v celej svojej rozmanitosti slobodu bádania, rovnaké príležitosti na úspech a môžu sa rovnako zúčastňovať na spolupráci, rozhodovaní a vedení Ústavu na všetkých úrovniach.

### 14.3. Aktualizácia Akčného plánu organizácie v roku 2024

V rámci Akčného plánu sa ústav v roku 2024 zameria na:

1. **Zvyšovanie kvality výstupov výskumu** - Priebežná aktualizácia kritérií hodnotenia tvorivých zamestnancov zahŕňajúca všetky typy výstupov (publikácie, citácie, projektová činnosť, popularizácia, vedenie mladých pracovníkov, pedagogika, expertízy a zmluvy)
2. **Zvyšovania kvality doktorandského štúdia** – sa uskutoční: i) výberom kvalitných školiteľov a ii) výberom kvalitných uchádzačov. Školitelia a konzultanti sú projektovo a publikačne aktívni v odbore doktorandského štúdia. Kontrola kvality sa bude uskutočňovať priebežne, ako aj v rámci výročného Seminára doktorandov na ústave. Akvizícia doktorandov v rámci DoktoGrantu poskytovania štipendií vlády SR pre zahraničných študentov.
3. **Popularizácia výsledkov výskumu a propagácia ústavu** – Účasť na popularizačných akciách, propagácia na webovom sídle ústavu a SAV, na sociálnych sieťach, tematické prednášky v rozhlase, televízii, na stredných a vysokých školách.
4. **Personálny rozvoj ústavu** – Prilákať slovenských vedcov vytvorením prijateľných podmienok pre ich prácu a rast. Prilákať študentov II. a III. stupňa VŠ z blízkych alebo príbuzných vedných odborov a tematicky ich zaškoliť pre potreby ústavu. Akvizícia postdoktorandov a odborníkov zo zahraničia v rámci európskych programov (SASPRO, MoRePro a IMPULZ).
5. **Získavanie výskumných grantov, osobitne zahraničných** – racionalizovať podávanie žiadostí o granty a usilovať sa o zvýšenie úspešnosti predovšetkým pri menších európskych projektoch (INTERREG, ESA, COST,...).
6. **Spolupráca s výskumnou, podnikateľskou a verejnou sférou** – hľadať ďalšie možnosti spolupráce s univerzitami, predovšetkým pri pedagogickej činnosti našich zamestnancov a podávaní spoločných projektov. Hľadať dlhodobé vedecké spolupráce so súkromným sektorom, spoločne žiadať o dotácie na výskum (nie servis).
7. **Budovanie a prevádzkovanie výskumnej infraštruktúry ústavu** – aktívne využívať laboratóriá na ústave. Nevyužívané prístroje ponúknuť iným inštitúciám za odplatu. Vytvoriť populárno-vzdelávacie centrum spojené s verejným planetáriom na mieste umelej oblohy.

## 15. Iné významné činnosti organizácie SAV

Ústav stavebníctva a architektúry SAV, v. v. i., si pripomenul 70. výročie založenia ústavu sympóziom *ÚSTARCH – výskum v období 1953 – 2023 a dnes*, ktoré sa konalo 9. – 10. októbra 2023 v Kongresovom centre Slovenskej akadémie vied v Smoleniciach.

V rámci slávnostného otvorenia sympózia zástupca riaditeľa Dr. Ing. Peter Matiašovský predniesol krátky pohľad do histórie pracoviska a zhrnul významné momenty zo života ústavu. Nasledoval príhovor riaditeľa ústavu prof. Martina-T. Paloua a príhovory hostí. Na záver riaditeľ ústavu udelil predstaviteľom spolupracujúcich inštitúcií a dlhoročným a stále činným pracovníkom ústavu medaily pomenované na počesť prvého riaditeľa ústavu akademika Karola Havelku.

Završením sympózia bol slávnostný banket, na ktorom prípitok a gratuláciu ku krásnemu jubileu predniesol podpredseda Slovenskej akadémie vied pre I. oddelenie vied Dr. Martin Venhart.

## **16. Poskytovanie informácií v súlade so zákonom o slobodnom prístupe k informáciám**

Základné informácie o zameraní pracoviska, jeho štruktúre, o riešených projektoch a výročné správy o činnosti pracoviska sú pre verejnosť prístupné na webovom sídle ústavu ([www.ustarch.sav.sk](http://www.ustarch.sav.sk)). O ďalšie informácie je možné požiadať v zmysle zákona č. 211/2000 Z. z. o slobodnom prístupe k informáciám (zákon o slobode informácií) v znení neskorších predpisov. V roku 2023 nebola na ústav doručená žiadna žiadosť o poskytnutie ďalších informácií v zmysle uvedeného zákona.

Podľa zákona č. 211/2000 Z. z. v znení zákona č. 382/2011 Z. z. a nariadenia vlády Slovenskej republiky č. 498/2011 Z. z., ktorým sa ustanovujú podrobnosti o zverejňovaní zmlúv v Centrálnom registri zmlúv a náležitosti informácie o uzatvorení zmluvy, boli v r. 2023 v Centrálnom registri zmlúv ([www.crz.gov.sk](http://www.crz.gov.sk)) zverejňované zmluvy a na webovom sídle ústavu údaje o objednávkach tovarov, služieb a prác a faktúrach za tovary, služby a práce.

*Uvedte informácie v súlade so zákonom č. 211/2000 Z.z. o slobodnom prístupe k informáciám.*

## **17. Problémy organizácie a podnety pre Predsedníctvo SAV k činnosti SAV**

*Uveďte informácie a podnety v súlade s názvom kapitoly.*



## **18. Vyjadrenia vedeckej rady organizácie k výsledkom výskumnej činnosti za uplynulý rok**

Výsledky výskumnej činnosti Ústavu stavebníctva a architektúry SAV, v. v. i. boli publikované v 43 vedeckých prácach registrovaných v Current Contents Connect a 15 prácach registrovaných vo Web of Science Core Collection alebo Scopus. Vzhľadom na počet vedeckých pracovníkov považuje Vedecká rada tieto výsledky za primerané a konštatuje, že Ústav stavebníctva a architektúry SAV, v. v. i. je inštitúcia plne spôsobilá vykonávať výskumnú činnosť v určených odboroch.

7.2.2024

Mgr. Miroslav Kocifaj, DrSc.  
*predseda vedeckej rady*

**Výročnú správu o činnosti organizácie za rok 2023 vypracoval(i):**

RNDr. Ladislav Kómar, PhD.

Bratislava, 14.2.2024

Prof.Dr.Ing. Martin-Tchingnabé Palou  
*riaditeľ organizácie*

## **PRÍLOHY k časti A**

**Príloha A-1****Zoznam zamestnancov a doktorandov organizácie k 31.12.2023****Zoznam zamestnancov podľa štruktúry**

	Meno s titulmi	Úväzok (v %)	Ročný prepočítaný úväzok
<b>Vedúci vedeckí pracovníci DrSc.</b>			
1.	Mgr. Miroslav Kocifaj, DrSc.	100	1.00
2.	Prof. Ing. Ján Sládek, DrSc.	100	1.00
3.	Prof. RNDr. Vladimír Sládek, DrSc.	100	1.00
<b>Vedúci vedeckí pracovníci CSc., PhD.</b>			
1.	Prof.Dr.Ing. Martin-Tchingnabé Palou	100	1.00
<b>Samostatní vedeckí pracovníci</b>			
1.	doc. Ing. Miroslav Čekon, PhD.	60	0.51
2.	Ing. Tibor Dubaj, PhD.	50	0.16
3.	RNDr. Ladislav Kómar, PhD.	100	1.00
4.	Ing. Peter Matiašovský, CSc.	100	1.00
5.	Mgr. Jaromír Petržala, PhD.	100	1.00
6.	Ing. Miroslav Repka, PhD.	100	1.00
7.	Ing. Ladislav Sátor, PhD.	100	1.00
8.	Ing. Michal Slaný, PhD.	50	0.40
9.	Ing. Matúš Žemlička, PhD.	100	1.00
<b>Vedeckí pracovníci</b>			
1.	Ing. Jakub Čurpek, PhD.	50	0.41
2.	doc. Ing. Ivan Hollý, PhD.	50	0.10
3.	Mgr. Olha Hrytsyna, DrSc.	100	1.00
4.	Ing. Aleš Nečas, PhD.	75	0.38
5.	doc.Ing. Daniel Papán, PhD.	20	0.06
6.	Ing. Tomáš Profant, Doc.,PhD.	50	0.50
7.	Ing. Richard Slávik, PhD.	50	0.50
8.	Mgr. Hector A. Solano Lamphar, PhD.	50	0.50
9.	MSc. Taher Anwar Tawfik, PhD.	100	0.90
10.	Mgr. Ajitanshu Vedrtam	100	1.00
11.	Dr. Stefan Wallner, BSc MSc	100	1.00
<b>Odborní pracovníci s VŠ vzdelaním (výskumní a vývojoví zamestnanci)</b>			
1.	Ing. Peter Czirák	30	0.02

2.	Ing. Jana Čepčianska	30	0.30
3.	Mgr. Stanislav Fecko	50	0.50
4.	Mgr. Maryan Hrytsyna	100	1.00
5.	RNDr. Anna Kocifajová	100	1.00
6.	Ing. Peter Mihálka, PhD.,	50	0.50
7.	Mgr. Sarah Stidl	50	0.50
8.	Ing. Marián Vrabec	100	1.00
<b>Odborní pracovníci s VŠ vzdelaním (ostatní zamestnanci)</b>			
1.	Bc., Ing. Mária Lindorová	20	0.20
2.	Mgr. Iveta Mikušiaková	100	0.58
3.	Mgr. Dagmar Práznovská	80	0.80
<b>Odborní pracovníci ÚSV</b>			
1.	Silvia Bučičová	100	1.00
2.	Martin Habovštiak	100	1.00
3.	Katarína Jakubove	100	1.00
4.	Daniela Kanichová	50	0.33
5.	Roman Kralovič	100	1.00
6.	Dagmar Slámová	100	1.00
<b>Ostatní pracovníci</b>			
1.	Eva Janotová	80	0.80
2.	Karol Kasák	100	1.00
3.	Jozef Kováč	80	0.80
4.	Rudolf Maninka	100	1.00
5.	Lucia Pinkavová	100	1.00

**Zoznam zamestnancov, ktorí odišli v priebehu roka**

	Meno s titulmi	Dátum odchodu	Ročný prepočítaný úväzok
<b>Vedúci vedeckí pracovníci DrSc.</b>			
1.	Prof. Ing. Ján Sládek, DrSc.	31.12.2023	1.00
<b>Samostatní vedeckí pracovníci</b>			
1.	Ing. Michal Slaný, PhD.	31.12.2023	0.50
<b>Vedeckí pracovníci</b>			
1.	Ing. Jozef Kriváček, CSc.	30.6.2023	0.10
<b>Odborní pracovníci s VŠ vzdelaním (výskumní a vývojoví zamestnanci)</b>			
1.	Ing. Kristína Compeľová	30.9.2023	0.15

2.	Ing. Peter Mihálka, PhD.,	31.12.2023	0.50
3.	Mgr. Sarah Stidl	31.12.2023	0.50
<b>Odborní pracovníci s VŠ vzdelaním (ostatní zamestnanci)</b>			
1.	Mgr. Renata Miklošová	30.6.2023	0.50
2.	Ing. Danko Sitarčíková	10.5.2023	0.36
<b>Ostatní pracovníci</b>			
1.	Pavol Krchňák	30.11.2023	0.40

**Zoznam doktorandov**

	Meno s titulmi	Škola/fakulta	Študijný odbor
<b>Interní doktorandi hrazení z prostředků SAV</b>			
1.	Ing. Peter Czirák	Stavebná fakulta STU	5.2.8 stavebníctvo
2.	Ing. Jana Čepčianska	Stavebná fakulta STU	5.2.8 stavebníctvo
3.	Ing. Alaa Nasir	Stavebná fakulta STU	5.2.8 stavebníctvo
4.	Ing. Bibiana Martinovičová	Stavebná fakulta ŽU	5.2.8 stavebníctvo
<b>Interní doktorandi hrazení z jiných zdrojů</b>			
<i>organizácia nemá interných doktorandov hrazených z jiných zdrojů</i>			
<b>Externí doktorandi</b>			
<i>organizácia nemá externých doktorandov</i>			

**Zoznam zamestnancov prijatých do jedného roka od získania PhD.**

	Meno s titulmi	Dátum obhajoby	Dátum prijatia	Úväzok (v %)
1.	Ing. Aleš Nečas, PhD.	26.8.2023	1.7.2023	75

**Zoznam emeritných vedeckých zamestnancov**

Meno s titulmi
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## Príloha A-2

### Projekty riešené v organizácii

#### Medzinárodné projekty

#### Programy: 5RP

##### 1.) Prachové častice v slnečnej sústave (*The birth of solar systems (PLANETS)*)

**Zodpovedný riešiteľ:** Miroslav Kocifaj  
**Trvanie projektu:** 1.9.2023 / 30.9.2027  
**Evidenčné číslo projektu:** CA22133  
**Organizácia**                      **je**  
**koordinátorom projektu:**  
**Koordinátor:**  
**Počet spoluriešiteľských inštitúcií:** 10 - Česko: 1, Nemecko: 1, Dánsko: 1, Estónsko: 1, Francúzsko: 1, Veľká Británia: 1, Švajčiarsko: 1, Čile: 1, Švédsko: 1, USA: 1  
**Čerpané financie:** MVTs - SAV: 833 €

##### Dosiahnuté výsledky:

##### 2.) (*New technology for hydrogen and geopolymer composites production from post-mining waste*)

**Zodpovedný riešiteľ:** Martin-Tchingnabé Palou  
**Trvanie projektu:** 1.7.2023 / 30.6.2026  
**Evidenčné číslo projektu:** 101112386  
**Organizácia je**                      **nie**  
**koordinátorom projektu:**  
**Koordinátor:** INSTYTUT TECHNIKI GORNICZEJ KOMAG  
**Počet spoluriešiteľských inštitúcií:** 3 - Česko: 1, Poľsko: 4, Slovensko: 1  
**Čerpané financie:** Research Fund for Coal and Steel (RFCS) EU: 16132 €

##### Dosiahnuté výsledky:

#### Programy: COST

##### 3.) Charakterizácia atmosférického aerosólu z pozemnej rádiometrie (*International network for harmonization of atmospheric aerosol retrievals from ground based photometers*)

**Zodpovedný riešiteľ:** Miroslav Kocifaj  
**Trvanie projektu:** 1.10.2022 / 31.10.2026  
**Evidenčné číslo projektu:** CA21119  
**Organizácia je**                      **nie**  
**koordinátorom projektu:**  
**Koordinátor:**  
**Počet spoluriešiteľských inštitúcií:** 10 - Belgicko: 1, Nemecko: 1, Španielsko: 1, Fínsko: 1, Francúzsko: 1, Veľká Británia: 1, Švajčiarsko: 1, Írsko: 1, Taliansko: 1, Nórsko: 1  
**Čerpané financie:** MVTs - SAV: 3125 €

##### Dosiahnuté výsledky:

KOCIFAJ, Miroslav. A systematic bias in present models of circumsolar radiation. In Solar Energy, 2023, vol. 264, art. no. 112036. (2022: 6.7 - IF, Q2 - JCR, 1.373 - SJR, Q1 - SJR). ISSN 0038-092X. Dostupné na: <https://doi.org/10.1016/j.solener.2023.112036>

## Programy: INTERREG

### 4.) (Circular and digital renewal of central Europe construction and building sector)

**Zodpovedný riešiteľ:** Martin-Tchingnabé Palou  
**Trvanie projektu:** 1.4.2023 / 1.6.2026  
**Evidenčné číslo projektu:** CE0100390  
**Organizácia je koordinátorom projektu:** nie  
**Koordinátor:** Slovenian National Building and Civil Engineering Institute  
**Počet spoluriešiteľských inštitúcií:** 9 - Rakúsko: 1, Česko: 1, Nemecko: 1, Chorvátsko: 3, Maďarsko: 1, Taliansko: 1, Poľsko: 1, Slovensko: 1, Slovinsko: 3  
**Čerpané financie:** -

#### Dosiahnuté výsledky:

HOLLÝ, Ivan - PRIBILA, Martin - PALOU, Martin T. - ONDÁK, Adrián - PROKOP, Jaroslav. TALPA HOUSE : Prvá aplikácia betónu s recyklovaným kamenivom na Slovensku. In Beton : technologie - konstrukce - sanace, 2023, roč. 132, č. 4, s. 72-75. ISSN 1213-3116. Typ: ADEB

## Domáce projekty

## Programy: VEGA

### 1.) Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry (Diffuse light in urban environment: A new model which embraces the optical properties of a local urban atmosphere)

**Zodpovedný riešiteľ:** Miroslav Kocifaj  
**Trvanie projektu:** 1.1.2020 / 31.12.2023  
**Evidenčné číslo projektu:** DIFFUSE  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** VEGA SAV: 9275 €

#### Dosiahnuté výsledky:

1. BARÁ, Salvador - BAO-VARELA, Carmen - KOCIFAJ, Miroslav. Modeling the artificial night sky brightness at short distances from streetlights. In Journal of Quantitative Spectroscopy & Radiative Transfer, 2023, vol. 296, art. no. 108456, p. 1-13. (2022: 2.3 - IF, Q2 - JCR, 0.498 - SJR, Q2 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0022-4073. Dostupné na: <https://doi.org/10.1016/j.jqsrt.2022.108456>
2. KOCIFAJ, Miroslav - KUNDRACIK, F. - BARÁ, Salvador - BARENTINE, John C. Vertical distribution of aerosol extinction coefficients at night derived from radiometry of scattered laser light. In Atmospheric Environment, 2023, vol. 297, art. no. 119599, 10 p. (2022: 5 - IF, Q1 - JCR, 1.347 - SJR, Q1 - SJR). ISSN 1352-2310.
3. KOCIFAJ, Miroslav - KÓMAR, Ladislav - SOLANO LAMPHAR, H. A. - BARENTINE, John



- C. - WALLNER, Stefan. A systematic light pollution modelling bias in present night sky brightness predictions. In *Nature Astronomy*, 2023, vol. 7, no. 3, p. 269-279. (2022: 14.1 - IF, Q1 - JCR, 3.269 - SJR, Q1 - SJR). ISSN 2397-3366. Dostupné na: <https://doi.org/10.1038/s41550-023-01916-y>
4. KOCIFAJ, Miroslav - KUNDRACIK, F. - BARENTINE, John C. Aerosol parameters for night sky brightness modelling estimated from daytime sky images. In *Monthly Notices of the Royal Astronomical Society*, 2023, vol. 523, no. 2, p. 2678-2683. (2022: 4.8 - IF, Q1 - JCR, 1.734 - SJR, Q1 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0035-8711. Dostupné na: <https://doi.org/10.1093/mnras/stad1570>
5. KOCIFAJ, Miroslav. A systematic bias in present models of circumsolar radiation. In *Solar Energy*, 2023, vol. 264, art. no. 112036. (2022: 6.7 - IF, Q2 - JCR, 1.373 - SJR, Q1 - SJR). ISSN 0038-092X. Dostupné na: <https://doi.org/10.1016/j.solener.2023.112036>

**2.) Výskum energetickej účinnosti inovatívnych BIPV/T článkov chladených PCM technológiou.** (*The energy efficiency of an innovative BIPV/T-TE-PCM module with PCM passive cooling*)

**Zodpovedný riešiteľ:** Ladislav Kómar  
**Trvanie projektu:** 1.1.2020 / 31.12.2023  
**Evidenčné číslo projektu:** 2/0095/20  
**Organizácia je** áno  
**koordinátorom projektu:**  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** VEGA SAV: 6029 €

**Dosiahnuté výsledky:**

1. KÓMAR, Ladislav - NEČAS, Aleš. Effect of cloud micro-physics on zenith brightness in urban environment. In *Journal of Quantitative Spectroscopy & Radiative Transfer*, 2023, vol. 302, art. no. 108563, 8p. (2022: 2.3 - IF, Q2 - JCR, 0.498 - SJR, Q2 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0022-4073.
2. ČURPEK, Jakub - ČEKON, Miroslav - KURUC, Michal - SLÁVIK, Richard - JUNAID, Muhammad Faisal. Dynamic and Spectral Transmission Changes in a Glass System Coupled with Photovoltaics and Phase Change Materials Subjected to Solar Simulator Tests. In *Environmental Science and Engineering: Proceedings of the 5th International Conference on Building Energy and Environment - COBEE 2022*, 2023, p. 785–793. (2022: 0.125 - SJR, Q4 - SJR). ISSN 1863-5539.
3. ČURPEK, Jakub - ČEKON, Miroslav – SLÁVIK, Richard. Building Performance Simulation of a BiPV Trombe Wall Enhanced with a Latent Thermal Energy Storage. 5th Euro-Mediterranean Conference for Environmental Integration 2-5 October 2023, Rende (Cosenza), Italy.

**3.) Materiálové zloženie a vlastnosti samozhutniteľných ťažkých betónov** (*Material composition and properties of Self-Compacting Heavyweight Concrete*)

**Zodpovedný riešiteľ:** Martin-Tchingnabé Palou  
**Trvanie projektu:** 1.1.2021 / 31.12.2023  
**Evidenčné číslo projektu:** VEGA 2/0017/21  
**Organizácia je** áno  
**koordinátorom projektu:**  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských** 0

**inštitúcií:**

**Čerpané financie:**

VEGA SAV: 9720 €

Dosiahnuté výsledky:

Na základe hmotnostných pomerov kameniva z jednotlivých frakcií bolo optimalizované zrnitostné zloženie pre splnenie požiadaviek na samozhutniteľné betóny (malty) podľa Európskych smerníc (EFNARC 2005 The European guidelines for self-compacting concrete). Ďalším krokom bola príprava a charakterizácia štvorzložkových kompozitných cementových materiálov pre vývoj samozhutniteľného betónu s objemovou hmotnosťou nad  $2600 \text{ kg m}^{-3}$  zo zmesí barytu a prírodného kameniva. Bol stanovený návrh betónu samozhutniteľného normálneho betónu s prírodným kamenivom a normálneho ťažkého betónu s barytom ako okrajovými podmienkami. Zloženie betónu sa postupne optimalizovalo kombináciou bežného kameniva a barytu tak, aby objemová hmotnosť bola vyššia ako  $2600 \text{ kg.m}^{-3}$  a zároveň boli splnené podmienky samozhutnenia. Zisťovali sa charakteristiky samozhutniteľnosti (konzistencia, viskozita a pod ) čerstvého betónu, mechanické vlastnosti a objemová hmotnosť zatvrdnutého betónu po 2, 28 a 90 dňoch.

1. Tawfik, Taher Anwar - Slaný, Michal - Palou, Martin T.. Influence of heavyweight aggregate on the fresh, mechanical, durability, and microstructural properties of self-compacting concrete under elevated temperatures. In Journal of building engineering, 2023, vol. 80, art. no. 108104. (2022: 6.4 - IF, Q1 - JCR, 1.232 - SJR, Q1 - SJR). ISSN 2352-7102. Dostupné na: <https://doi.org/10.1016/j.jobbe.2023.108104>.
2. Tawfik, Taher Anwar - Palou, Martin T. - Moustafa, Manal - El-Yamany, Magdy - Faried, A. Serag - Sofi, W. H. Properties Of Environmental Concrete That Contains Natural Waste Fibers To Promote Microstructure And Mechanical Properties. In Non-Traditional Cement & Concrete VII : proceedings. Edited by Vlastimil Bílek, Filip Khestl, Petr Miarka, Stanislav Seitzl. - Brno : Institute of Physics of Materials of the Czech Academy of Sciences, 2023, p. 160-173. ISBN 978-80-87434-09-3.
3. Palou, Martin T. - Podhorská, Janette - Ju, Minkwan - Park, Kyoungsoo - Čepčianska, Jana - Žemlička, Matúš - Koplík, Jan. Mix proportion and experimental study of heavyweight self-compacting concrete based on magnetite and barite. In JTACC 2023 - 3rd Journal of Thermal Analysis and Calorimetry Conference and 9th V4 (Joint Czech-Hungarian-Polish-Slovakian) Thermoanalytical Conference: BOOK OF ABSTRACTS. - Budapest : Akadémiai Kiadó, 2023, p. 200-201. ISSN 978-963-454-915-4. 3rd Journal of Thermal Analysis and Calorimetry Conference and 9th V4 (Joint Czech-Hungarian-Polish-Slovakian) Thermoanalytical Conference) Typ: AFK
4. Czirá, Peter - Čepčianska, Jana - Palou, Martin T. Štúdiu vplyvu vlákien na fyzikálno-mechanické vlastnosti ťažkých samozhutniteľných vláknobetónov s cement nahradzujúcimi prísadami. In BETÓN 2023 : zborník príspevkov z konferencie. R. Hela, P. Kňaze, A. Sičáková. - Bratislava : Slovenská asociácia výrobcov transportbetónu Bratislava, 2023, s. 89-97. ISBN 978-80-8076-154-7. Betón 2023 : konferencia s medzinárodnou účasťou) Typ: AFD
5. Čepčianska, Jana - Palou, Martin T. Optimalizácia zloženia zmesí ťažkých samozhutniteľných vláknobetónov na základe reologických parametrov = Optimization of the heavy weight self-compacting fibre reinforced concretes composition based on rheological parameters. In JUNIORSTAV 2023 - 25. mezinárodní doktorská konference stavebního inženýrství : sborník příspěvků. - Brno : Vysoké učení technické v Brně, Fakulta stavební, 2023, s. 187-193. ISBN 978-80-86433-80-6. Juniorstav 2023 : mezinárodní doktorská konference stavebního inženýrství) Typ: AFC
6. Čepčianska, Jana - Palou, Martin T. Vplyv polykarboxylátových superplastifikačných prísad na úpravu reologických charakteristík ťažkých samozhutniteľných vláknobetónov. In Kvalita cementu 2023 : XVI. ročník odborného semináře. Lektorovali: René Čechmánek. - Výzkumný ústav stavebních hmot, 2023, s. 47-54. ISBN 978-80-87397-39-8. Kvalita cementu 2023) Typ:

AFC

**4.) Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií** (*Multiscale study and modelling of composite macrostructures*)

**Zodpovedný riešiteľ:** Vladimír Sládek  
**Trvanie projektu:** 1.1.2020 / 31.12.2023  
**Evidenčné číslo projektu:** 2/0061/20  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** VEGA SAV: 13912 €

Dosiahnuté výsledky:

1. W. Huang, J.J. Yang, J. Sladek, V. Sladek, P.H. Wen: Meshless finite block method with infinite elements for axisymmetric cracked solid made of functionally graded materials, Eur. Jour. of Mechanics/ A Solids 97 (2023), 104852. <https://doi.org/10.1016/j.euromechsol.2022.104852>
2. C. Wen, J. Sladek, V. Sladek, M.H. Aliabadi, P. Wen: Fracture analysis of functionally graded materials by the method of fundamental solutions, Theoret. Appl. Fract. Mech. 123 (2023), 103724. <https://doi.org/10.1016/j.tafmec.2022.103724>
3. O. Hrytsyna, J. Sladek, V. Sladek, M. Hrytsyna: Love waves propagation in layered waveguide structures including flexomagnetism/flexoelectricity and micro-inertia effects, Mech Adv. Mater. Struct.
4. X.Li, M.H. Aliabadi, J. Sladek, V. Sladek, P.H. Wen: Finite block method with Chebyshev polynomials applied to cracked plate in functionally graded materials, Journal of Multiscale Modelling 14 (2023), 2341002 <https://doi.org/10.1142/S1756973723410020>
5. T. Profant, J. Sladek, V. Sladek: Asymptotic solutions for interface cracks between two dissimilar flexoelectric materials, Mech. Adv. Mater. Struct. <https://doi.org/10.1080/15376494.2023.2226136>
6. J.C. Wen, Y.R. Zhou, J. Sladek, V. Sladek, P.H. Wen: Galerkin finite block method in solid mechanics, Computers and Mathematics with Applications 155 (2024), 66-79. <https://doi.org/10.1016/j.camwa.2023.11.028>
7. V. Sladek, J. Sladek, L. Sator, Y. Li: Micro-structural effects in phononic dielectric structures, Composite Structures 309 (2023), 116548. <https://doi.org/10.1016/j.compstruct.2022.116548>
8. T. Profant, J. Sladek, V. Sladek, M. Kotoul: Assessment of amplitude factors of asymptotic expansion at crack tip in flexoelectric solid under mode I and II loadings, Int. J. Solids Struct. 269 (2023), 112194. <https://doi.org/10.1016/j.ijsolstr.2023.112194>
9. J. Sladek, V. Sladek, M. Hrytsyna, T. Profant: Influence of flexoelectricity on interface crack problems under a dynamic load, Eng. Fract. Mech. 288 (2023), 109353. <https://doi.org/10.1016/j.engfracmech.2023.109353>
10. V. Sladek, J. Sladek: Higher-grade theory of heat conduction and size effects, in: 29th Int. Conf. Engineering Mechanics 2023 (Eds. V. Radolf, I. Zolotarev), Milovy, Czech Republic, May 9-11, 2023, pp. 231-234. ISBN 978-80-87012-84-0, ISSN 1805-8248
11. J. Sladek, V. Sladek: Advanced continuum model for thermoelectric analyses, , in: 29th Int. Conf. Engineering Mechanics 2023 (Eds. V. Radolf, I. Zolotarev), Milovy, Czech Republic, May 9-11, 2023, pp. 227-230. ISBN 978-80-87012-84-0, ISSN 1805-8248
12. T. Profant<sup>1</sup>, J. Sladek, and V. Sladek: The flexoelectric effect for interface cracks between two dissimilar materials, in: Advanced Topics in Mechanics of Materials, Structures and Construction - AToMech1-2023 Materials Research Forum LLC, Materials Research Proceedings 31 (2023) 99-108. <https://doi.org/10.21741/9781644902592-11>
13. L. Sator, V. Sladek, J. Sladek: Analysis of functionally graded piezoelectric micro/nano plates by

- Moving finite element method, AIP Conf. Proc. 2950 (2023), 20001, <https://doi.org/10.1063/5.0180781>
14. V. Sladek, J. Sladek, L. Sator: Higher-grade theory of heat conduction in solids, AIP Conf. Proc. 2950 (2023), 20025, <https://doi.org/10.1063/5.0180726>
15. O. Hrytsyna, J. Sladek, V. Sladek, M. Hrytsyna: Torsional vibration of nanotubes with including strain gradient and velocity gradient effects, AIP Conf. Proc. 2950 (2023), 20005, <https://doi.org/10.1063/5.0180787>
16. M. Hrytsyna, J. Sladek, V. Sladek, O. Hrytsyna: A higher-order beam theory for vibration analysis of nanobeams with including dynamic flexoelectric effect, AIP Conf. Proc. 2950 (2023), 20030, <https://doi.org/10.1063/5.0180785>

## Programy: APVV

### 5.) Globálna charakterizácia svetelného znečistenia (*Global Characterization of Skyglow*)

**Zodpovedný riešiteľ:** Miroslav Kocifaj  
**Trvanie projektu:** 1.7.2019 / 30.6.2023  
**Evidenčné číslo projektu:** APVV-18-0014  
**Organizácia** jeáno  
**koordinátorom projektu:**  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 20777 €

#### Dosiahnuté výsledky:

1. BARÁ, Salvador - BAO-VARELA, Carmen - KOCIFAJ, Miroslav. Modeling the artificial night sky brightness at short distances from streetlights. In Journal of Quantitative Spectroscopy & Radiative Transfer, 2023, vol. 296, art. no. 108456, p. 1-13. (2022: 2.3 - IF, Q2 - JCR, 0.498 - SJR, Q2 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0022-4073. Dostupné na: <https://doi.org/10.1016/j.jqsrt.2022.108456>
2. BARENTINE, John C. - VENKATESAN, Aparna - HEIM, Jessica - LOWENTHAL, James - KOCIFAJ, Miroslav - BARÁ, Salvador. Aggregate effects of proliferating low-Earth-orbit objects and implications for astronomical data lost in the noise. In Nature Astronomy, 2023, vol. 7, no. 3, p. 252-258. (2022: 14.1 - IF, Q1 - JCR, 3.269 - SJR, Q1 - SJR). ISSN 2397-3366. Dostupné na: <https://doi.org/10.1038/s41550-023-01904-2>
3. KOCIFAJ, Miroslav - KUNDRACIK, F. - BARÁ, Salvador - BARENTINE, John C. Vertical distribution of aerosol extinction coefficients at night derived from radiometry of scattered laser light. In Atmospheric Environment, 2023, vol. 297, art. no. 119599, 10 p. (2022: 5 - IF, Q1 - JCR, 1.347 - SJR, Q1 - SJR). ISSN 1352-2310.
4. KOCIFAJ, Miroslav - WALLNER, Stefan - BARENTINE, John C. Measuring and monitoring light pollution: Current approaches and challenges. In Science, 2023, vol. 380, no. 6650, p. 1121-1124. (2022: 56.9 - IF, Q1 - JCR, 13.328 - SJR, Q1 - SJR). ISSN 0036-8075. Dostupné na: <https://doi.org/10.1126/science.adg0473>
5. KOCIFAJ, Miroslav - KÓMAR, Ladislav - SOLANO LAMPHAR, H. A. - BARENTINE, John C. - WALLNER, Stefan. A systematic light pollution modelling bias in present night sky brightness predictions. In Nature Astronomy, 2023, vol. 7, no. 3, p. 269-279. (2022: 14.1 - IF, Q1 - JCR, 3.269 - SJR, Q1 - SJR). ISSN 2397-3366. Dostupné na: <https://doi.org/10.1038/s41550-023-01916-y>
6. KOCIFAJ, Miroslav - KUNDRACIK, F. - BARENTINE, John C. Aerosol parameters for night sky brightness modelling estimated from daytime sky images. In Monthly Notices of the Royal

Astronomical Society, 2023, vol. 523, no. 2, p. 2678-2683. (2022: 4.8 - IF, Q1 - JCR, 1.734 - SJR, Q1 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0035-8711. Dostupné na: <https://doi.org/10.1093/mnras/stad1570>

7. WALLNER, Stefan - KOCIFAJ, Miroslav. Aerosol impact on light pollution in cities and their environment. In Journal of Environmental Management, 2023, vol. 335, art. no. 117534, 12 p. (2022: 8.7 - IF, Q1 - JCR, 1.678 - SJR, Q1 - SJR). ISSN 0301-4797. Dostupné na: <https://doi.org/10.1016/j.jenvman.2023.117534>
8. WALLNER, Stefan - KOCIFAJ, Miroslav - RAMMELMÜLLER, Christoph. Taking the atmosphere into account: Finding a stronger link between air and light pollution and how to treat it in the future. In ALAN 2023 - Artificial Light at Night : Conference Abstract Booklet. - 2023, p. 211-212.

**6.) Komplexný model šírenia svetelného znečistenia do okolitého prostredia** (*Comprehensive model of light pollution propagation into the ambient environment*)

**Zodpovedný riešiteľ:** Miroslav Kocifaj  
**Trvanie projektu:** 1.7.2023 / 30.6.2027  
**Evidenčné číslo projektu:** APVV-22-0020  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 27179 €

Dosiahnuté výsledky:

1. Stefan Wallner, Johannes Puschig, Sarah Stidl: The reliability of satellite-based light trends for dark sky areas in Austria. Journal of Quantitative Spectroscopy & Radiative Transfer 311 (2023) 108774. <https://doi.org/10.1016/j.jqsrt.2023.108774>

**7.) Výskum a vývoj mnohozložkových cementových zmesí pre špeciálne konštrukčné materiály** (*Research and development of multi-component cementitious blends for special construction materials*)

**Zodpovedný riešiteľ:** Martin-Tchingnabé Palou  
**Trvanie projektu:** 1.7.2020 / 30.6.2024  
**Evidenčné číslo projektu:** APVV-19-0490  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 53721 €

Dosiahnuté výsledky:

Jedným zo základných úloh predkladaného projektu je navrhnúť a optimalizovať zloženie viaczložkových cementov tak, aby viedli k príprave cementových zmesí pre geotermálne vrty, geopolymerné spojivá a pre vývoj vysokohodnotných betónov so samozhutiteľnými charakteristikami a vynikajúcimi mechanickými a fyzikálno-chemickými vlastnosťami. Naplnenie tohto cieľa bolo podmienené podrobným štúdiom chémie, kinetiky a mechanizmu hydratácie, pucolánových reakcií a procesu alkalickéj aktivácie za súčasného pôsobenia viacerých aktívnych

prímesí. Nevyhnutné bolo stanovenie závislosti priebehu týchto procesov od vlastností východiskových materiálov, teda ich oxidového a mineralogického zloženia, ako aj distribúcie veľkosti častíc a špecifického povrchu.

1. Kuzielová, Eva - Tatarko, Miroslav - Slaný, Michal - Žemlička, Matúš - Másilko, Jiří - Novotný, Radoslav - Palou, Martin T.. Early and middle stages of multicomponent cement hydration under the effect of geothermal water and increased temperatures. In *Geothermics*, 2023, vol. 108, art. no. 102632, p. 1-13. (2022: 3.9 - IF, Q2 - JCR, 0.912 - SJR, Q1 - SJR). ISSN 0375-6505. Dostupné na: <https://doi.org/10.1016/j.geothermics.2022.102632>
2. Kuzielová, Eva - Slaný, Michal - Žemlička, Matúš - Másilko, Jiří. Accelerated carbonation of oil-well cement blended with pozzolans and latent hydraulic materials. In *Journal of Thermal Analysis and Calorimetry*, 2023, vol. 148, no. 19, p. 9963–9977. (2022: 4.4 - IF, Q1 - JCR, 0.753 - SJR, Q1 - SJR). ISSN 1388-6150. Dostupné na: <https://doi.org/10.1007/s10973-023-12378-9>.
3. Slaný, Michal - Kuzielová, Eva - Žemlička, Matúš - Matejdes, Marián - Struhárová, Alena - Palou, Martin T.. Metabentonite and metakaolin based geopolymers/zeolites: relation between kind of clay, calcination temperature and concentration of alkaline activator. In *Journal of Thermal Analysis and Calorimetry*, 2023, vol. 148, no. 20, p. 10531-10547. (2022: 4.4 - IF, Q1 - JCR, 0.753 - SJR, Q1 - SJR). ISSN 1388-6150. Dostupné na: <https://doi.org/10.1007/s10973-023-12267-1>.
4. Čepčianska, Jana - Palou, Martin T.. Optimalizácia zloženia zmesi ťažkých samozhutniteľných vláknobetónov na základe reologických parametrov = Optimization of the heavy weight self-compacting fibre reinforced concretes composition based on rheological parameters. In *JUNIORSTAV 2023 - 25. mezinárodní doktorská konference stavebního inženýrství : sborník příspěvků*. - Brno : Vysoké učení technické v Brně, Fakulta stavební, 2023, s. 187-193. ISBN 978-80-86433-80-6. Juniorstav 2023 : mezinárodní doktorská konference stavebního inženýrství).
5. Čepčianska, Jana - Palou, Martin T.. Vplyv polykarboxylátových superplastifikačných prísad na úpravu reologických charakteristík ťažkých samozhutniteľných vláknobetónov. In *Kvalita cementu 2023 : XVI. ročník odborného semináře*. Lektorovali: René Čechmánek. - Výzkumný ústav stavebních hmot, 2023, s. 47-54. ISBN 978-80-87397-39-8.
6. Palou, Martin T. - Žemlička, Matúš - Čepčianska, Jana. Nové cementové kompozity pre využitie v hĺbkových geotermálnych vrtoch. In *Kvalita cementu 2023 : XVI. ročník odborného semináře*. Lektorovali: René Čechmánek. - Výzkumný ústav stavebních hmot, 2023, s. 61-71. ISBN 978-80-87397-39-8.

**8.) Efekt nano-, mikro- a mezo-nehomogenít na makro termomechanické chovanie sa kompozitných konštrukcií** (*Effect of nano-, micro-, and meso-nonhomogeneities in the macroscale thermomechanical performance of composite structure members*)

<b>Zodpovedný riešiteľ:</b>	Ján Sládek
<b>Trvanie projektu:</b>	1.2.2022 / 31.12.2023
<b>Evidenčné číslo projektu:</b>	SK-UA-21-0010
<b>Organizácia je koordinátorom projektu:</b>	áno
<b>Koordinátor:</b>	Ústav stavebníctva a architektúry SAV, v. v. i.
<b>Počet spoluriešiteľských inštitúcií:</b>	1 - Ukrajina: 1
<b>Čerpané financie:</b>	APVV: 6900 €

Dosiahnuté výsledky:

1. M. Hrytsyna, J. Sladek, V. Sladek, O. Hrytsyna: A higher-order beam theory for vibration



- analysis of nanobeams with including dynamic flexoelectric effect. AIP Conf. Proc. 2950 (2023) 020030. <https://doi.org/10.1063/5.0180785>
2. J. Sladek, V. Sladek, M. Repka: Thermo-electric Joule heating in crack problems in nano-sized structures. Journal of Thermal Stresses, 46 (2023) 606-619. <https://doi.org/10.1080/01495739.2023.2203209>

Prihláška patentu:

PP50024-2023; Thermo-electric Joule heating in crack problems in nano-sized structures

### 9.) Optimálny návrh mikro/nano konštrukcii pre metamateriály (*Optimal design of micro/nano structures for metamaterials*)

**Zodpovedný riešiteľ:** Ján Sládek  
**Trvanie projektu:** 1.7.2019 / 30.6.2023  
**Evidenčné číslo projektu:** APVV-18-0004  
**Organizácia je** áno  
**koordinátorom projektu:**  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** APVV: 33744 €

#### Dosiahnuté výsledky:

1. W. Huang, J.J. Yang, J. Sladek, V. Sladek, P.H. Wen: Meshless finite block method with infinite elements for axisymmetric cracked solid made of functionally graded materials. European Journal of Mechanics/ A Solids 97 (2023) 104852. <https://doi.org/10.1016/j.euromechsol.2022.104852>
2. J.C. Wen, J. Sladek, V. Sladek, M.H. Aliabadi, P.H. Wen: Fracture analysis of functionally graded materials by the method of fundamental solutions, Theoretical and Applied Fracture Mechanics, 123 (2023) 103724. <https://doi.org/10.1016/j.tafmec.2022.103724>
3. J. Sladek, V. Sladek, M. Repka, S. Schmauder: Gradient theory of thermoelasticity for interface crack problems with a quasicrystal layer, International Journal of Solids and Structures, 264 (2023) 112097. <https://doi.org/10.1016/j.ijsolstr.2022.112097>
4. H. Wei, J.L. Zheng, J. Sladek, V. Sladek, P.H. Wen: Method of fundamental solution using Erdogan's solution: Static and dynamic, Engineering Analysis with Boundary Elements 148 (2023) 176-189. <https://doi.org/10.1016/j.enganabound.2022.12.035>
5. V. Sladek, J. Sladek, L. Sator, Y. Li: Micro-structural effects in phononic dielectric structures, Composite Structures 309 (2023) 116548. <https://doi.org/10.1016/j.compstruct.2022.116548>.
6. T. Profant, J. Sladek, V. Sladek, M. Kotoul: Assessment of amplitude factors of asymptotic expansion at crack tip in flexoelectric solid under mode I and II loadings. International Journal of Solids and Structures, 269 (2023) 112194. <https://doi.org/10.1016/j.ijsolstr.2023.112194>
7. J. Sladek, V. Sladek, M. Hrytsyna, T. Profant: Influence of flexoelectricity on interface crack problems under a dynamic load. Engineering Fracture Mechanics, 288 (2023) 109353. <https://doi.org/10.1016/j.engfracmech.2023.109353>
8. T. Profant, J. Sladek, V. Sladek: Asymptotic solutions for interface cracks between two dissimilar flexoelectric materials. Mechanics of Advanced Materials and Structures <https://doi.org/10.1080/15376494.2023.2226136>
9. X. Li, M.H. Aliabadi, J. Sladek, V. Sladek, P.H. Wen: Finite block method with Chebyshev polynomials applied to cracked plate in functionally graded materials. Journal of Multiscale Modelling, 14 (2023) 2341002. DOI: 10.1142/S1756973723410020

## Programy: SASPRO

**10.) Zlepšenie štrukturálnej bezpečnosti a energetickej účinnosti prostredníctvom vývoja trvalo udržateľných cementových kompozitov na báze cementu odolných voči extrémnym teplotám s funkciami samoopravenia po požiari (*Improving Structural Safety and Energy Efficiency Through Development of Extreme Temperature Resistant Sustainable Cement-Based Composites with Post-Fire Self-Healing Features* )**

**Zodpovedný riešiteľ:** Ajitanshu Vedrtam  
**Trvanie projektu:** 1.9.2022 / 31.8.2025  
**Evidenčné číslo projektu:** 1213/02/01  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** 68683,26 €

### Dosiahnuté výsledky:

**11.) Meranie and modelovanie svetelného znečistenia (*Measuring and Modelling Light Pollution* )**

**Zodpovedný riešiteľ:** Stefan Wallner  
**Trvanie projektu:** 1.9.2022 / 31.8.2025  
**Evidenčné číslo projektu:** 1384/03/01  
**Organizácia je koordinátorom projektu:** áno  
**Koordinátor:** Ústav stavebníctva a architektúry SAV, v. v. i.  
**Počet spoluriešiteľských inštitúcií:** 0  
**Čerpané financie:** 59696,01 €

1. S. Wallner, M. Kocifaj. Aerosol impact on light pollution in cities and their environment. *Journal of Environmental Management* 335, 117534 (2023). DOI: 10.1016/j.jenvman.2023.117534
2. M. Kocifaj, L. Komár, H. Lamphar, J. Barentine, S. Wallner. A systematic light pollution modelling bias in present night sky brightness predictions. *Nature Astronomy* 7, 269-279 (2023). DOI: 10.1038/s41550-023-01916-y
3. M. Kocifaj, S. Wallner, J. Barentine, Measuring and monitoring light pollution: Current approaches and challenges. *Science* 380, 1121-1124 (2023). DOI: 10.1126/science.adg0473
4. S. Wallner, J. Puschnig, S. Stidl. The reliability of satellite-based light trends for dark sky areas in Austria. *Journal of Quantitative Spectroscopy and Radiative Transfer*, 108774 (2023). DOI: 10.1016/j.jqsrt.2023.108774



## Príloha A-3

### Publikačná činnosť organizácie

*Príloha je generovaná z ARL.*

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

- ABC01 WEN, P. H. - ZHENG, H. - YANG, J. J. - SLÁDEK, Ján - SLÁDEK, Vladimír. Crack Analysis by Dimensional Reduction Methods. In Comprehensive Structural Integrity : Second Edition. - Elsevier Science, 2023, vol. 3, P. 296-318. ISBN 978-0-323-91945-6. Dostupné na: <https://doi.org/10.1016/B978-0-12-822944-6.00022-0>

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

- ADCA01 BALTAKYS, K.\*\* - EISINAS, A. - VASILIAUSKIENE, Kristina - PALOU, Martin T. - DAMBRAUSKAS, T. The effect of calcined mayenite on the hydration of ordinary Portland cement. In Ceramics International, 2023, vol. 49, no. 9, p. 14826-14833. (2022: 5.2 - IF, Q1 - JCR, 0.918 - SJR, Q1 - SJR). ISSN 0272-8842. Dostupné na: <https://doi.org/10.1016/j.ceramint.2022.06.151>
- ADCA02 BARÁ, Salvador\*\* - BAO-VARELA, Carmen - KOCIFAJ, Miroslav. Modeling the artificial night sky brightness at short distances from streetlights. In Journal of Quantitative Spectroscopy & Radiative Transfer, 2023, vol. 296, art. no. 108456, p. 1-13. (2022: 2.3 - IF, Q2 - JCR, 0.498 - SJR, Q2 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0022-4073. Dostupné na: <https://doi.org/10.1016/j.jqsrt.2022.108456> (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia. VEGA 2/0010/20 : Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry)
- ADCA03 BARENTINE, John C.\*\* - VENKATESAN, Aparna - HEIM, Jessica - LOWENTHAL, James - KOCIFAJ, Miroslav - BARÁ, Salvador. Aggregate effects of proliferating low-Earth-orbit objects and implications for astronomical data lost in the noise. In Nature Astronomy, 2023, vol. 7, no. 3, p. 252-258. (2022: 14.1 - IF, Q1 - JCR, 3.269 - SJR, Q1 - SJR). ISSN 2397-3366. Dostupné na: <https://doi.org/10.1038/s41550-023-01904-2> (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia)
- ADCA04 ČURPEK, Jakub - ČEKON, Miroslav\*\* - ŠIKULA, Ondřej - SLÁVIK, Richard. Thermodynamic responses of adaptive mechanisms in BiPV façade systems coupled with latent thermal energy storage. In Energy and Buildings, 2023, vol. 279, art. no. 112665, p. 1-18. (2022: 6.7 - IF, Q1 - JCR, 1.608 - SJR, Q1 - SJR). ISSN 0378-7788. Dostupné na: <https://doi.org/10.1016/j.enbuild.2022.112665>
- ADCA05 FAYED, Sabry\*\* - MANSOUR, Walid - TAWFIK, Taher Anwar. Bearing behavior of steel fiber reinforced recycled aggregate concrete blocks. In Structures, 2023, vol. 57, art. no. 105249, 15 p. (2022: 4.1 - IF, Q2 - JCR, 0.887 - SJR, Q1 - SJR). ISSN 2352-0124. Dostupné na: <https://doi.org/10.1016/j.istruc.2023.105249>
- ADCA06 FAYED, Sabry\*\* - MANSOUR, Walid - TAWFIK, Taher Anwar - SABOL, Peter - KATUNSKY, D.\*\*. Techniques Used for Bond Strengthening of Sub-Standard Splices in Concrete: A Review Study. In Processes, 2023, vol. 11, no. 4, art. no. 1119, 23 p. (2022: 3.5 - IF, Q2 - JCR, 0.529 - SJR, Q2 - SJR). ISSN 2227-9717. Dostupné na: <https://doi.org/10.3390/pr11041119>
- ADCA07 HRYTSYNA, Olha\*\* - SLÁDEK, Ján - SLÁDEK, Vladimír - HRYTSYNA, Maryan. Love waves propagation in layered waveguide structures including

- flexomagnetism/flexoelectricity and micro-inertia effects. In *Mechanics of Advanced Materials and Structures*, 2023, vol. 30, no. 23, p. 4933-4951. (2022: 2.8 - IF, Q2 - JCR, 0.669 - SJR, Q2 - SJR). ISSN 1537-6494. Dostupné na: <https://doi.org/10.1080/15376494.2022.2109782> (APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
- ADCA08 HRYTSYNA, Olha - TOKOVYY, Yuriy V. - HRYTSYNA, Maryan. Local gradient theory of dielectrics incorporating polarization inertia and flexodynamic effect. In *Continuum Mechanics and Thermodynamics*, 2023, vol. 35, no. 6, p. 2125-2144. (2022: 2.6 - IF, Q2 - JCR, 0.843 - SJR, Q1 - SJR). ISSN 0935-1175. Dostupné na: <https://doi.org/10.1007/s00161-023-01229-5> (SK-UA-21-0010 : Efekt nano-, mikro- a mezo-nehomogenít na makro termomechanické chovanie sa kompozitných konštrukcií)
- ADCA09 HUANG, Wang - YANG, J. J.\*\* - SLÁDEK, Ján - SLÁDEK, Vladimír - WEN, P. H.\*\*. Meshless finite block method with infinite elements for axisymmetric cracked solid made of functionally graded materials. In *European Journal of Mechanics A: Solids*, 2023, vol. 97, art. no. 104852, p. 1-13. (2022: 4.1 - IF, Q1 - JCR, 1.082 - SJR, Q1 - SJR). ISSN 0997-7538. Dostupné na: <https://doi.org/10.1016/j.euromechsol.2022.104852> (APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
- ADCA10 CHATURVEDI, Shashikant - VEDRTNAM, Ajitanshu\*\* - YOUSSEF, Maged A. - PALOU, Martin T. - BARLUENGA, Gonzalo - KALAUNI, Kishor. Fire-Resistance Testing Procedures for Construction Elements-A Review. In *Fire-Schweizerland*, 2023, vol. 6, no. 1, art. no. 5, p. 1-35. (2022: 3.2 - IF, Q1 - JCR, 0.779 - SJR, Q1 - SJR). ISSN 2571-6255. Dostupné na: <https://doi.org/10.3390/fire6010005> (SASPRO 2 č. 1213/02/01 : Zlepšenie štrukturálnej bezpečnosti a energetickej účinnosti prostredníctvom vývoja trvalo udržateľných cementových kompozitov na báze cementu odolných voči extrémnym teplotám s funkciami samoopravenia po požari)
- ADCA11 JAROŠ, Pavol\*\* - VERTAĽ, Marián - SLÁVIK, Richard. Hygric and thermal properties of Slovak building sandstones. In *Journal of building engineering*, 2023, vol. 66, art. no. 105891, 21 p. (2022: 6.4 - IF, Q1 - JCR, 1.232 - SJR, Q1 - SJR). ISSN 2352-7102. Dostupné na: <https://doi.org/10.1016/j.jobbe.2023.105891>
- ADCA12 KOCIFAJ, Miroslav\*\* - KUNDRACIK, F. - BARÁ, Salvador - BARENTINE, John C. Vertical distribution of aerosol extinction coefficients at night derived from radiometry of scattered laser light. In *Atmospheric Environment*, 2023, vol. 297, art. no. 119599, 10 p. (2022: 5 - IF, Q1 - JCR, 1.347 - SJR, Q1 - SJR). ISSN 1352-2310. Dostupné na: <https://doi.org/10.1016/j.atmosenv.2023.119599> (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia. VEGA 2/0010/20 : Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry)
- ADCA13 KOCIFAJ, Miroslav\*\* - WALLNER, Stefan - BARENTINE, John C. Measuring and monitoring light pollution: Current approaches and challenges. In *Science*, 2023, vol. 380, no. 6650, p. 1121-1124. (2022: 56.9 - IF, Q1 - JCR, 13.328 - SJR, Q1 - SJR). ISSN 0036-8075. Dostupné na: <https://doi.org/10.1126/science.adg0473> (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia. Horizont 2020 Marie Curie Skłodowska COFUND č. 945478 : SASPRO 2 č. 1384/03/01 Meranie a modelovanie svetelného znečistenia)
- ADCA14 KOCIFAJ, Miroslav\*\* - KÓMAR, Ladislav - SOLANO LAMPHAR, H. A. - BARENTINE, John C. - WALLNER, Stefan. A systematic light pollution modelling bias in present night sky brightness predictions. In *Nature Astronomy*, 2023, vol. 7, no. 3, p. 269-279. (2022: 14.1 - IF, Q1 - JCR, 3.269 - SJR, Q1 - SJR). ISSN 2397-3366. Dostupné na: <https://doi.org/10.1038/s41550-023-01916-y>

- (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia. VEGA 2/0010/20 : Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry. Horizont 2020 Marie Curie Skłodowska COFUND č. 945478 : SASPRO 2 č. 1384/03/01 Meranie a modelovanie svetelného znečistenia)
- ADCA15 KOCIFAJ, Miroslav\*\* - KUNDRACIK, F. - BARENTINE, John C. Aerosol parameters for night sky brightness modelling estimated from daytime sky images. In Monthly Notices of the Royal Astronomical Society, 2023, vol. 523, no. 2, p. 2678-2683. (2022: 4.8 - IF, Q1 - JCR, 1.734 - SJR, Q1 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0035-8711. Dostupné na: <https://doi.org/10.1093/mnras/stad1570> (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia. VEGA 2/0010/20 : Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry)
- ADCA16 KOCIFAJ, Miroslav. A systematic bias in present models of circumsolar radiation. In Solar Energy, 2023, vol. 264, art. no. 112036. (2022: 6.7 - IF, Q2 - JCR, 1.373 - SJR, Q1 - SJR). ISSN 0038-092X. Dostupné na: <https://doi.org/10.1016/j.solener.2023.112036> (VEGA 2/0010/20 : Difúzne svetlo v mestskom prostredí: nový model zohľadňujúci vlastnosti lokálnej atmosféry)
- ADCA17 KÓMAR, Ladislav\*\* - NEČAS, Aleš. Effect of cloud micro-physics on zenith brightness in urban environment. In Journal of Quantitative Spectroscopy & Radiative Transfer, 2023, vol. 302, art. no. 108563, 8p. (2022: 2.3 - IF, Q2 - JCR, 0.498 - SJR, Q2 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0022-4073. Dostupné na: <https://doi.org/10.1016/j.jqsrt.2023.108563> (VEGA 2/0095/20 : Výskum energetickej účinnosti inovatívnych BIPV/T článkov chladených PCM technológiou. APVV-18-0014 : Globálna charakterizácia svetelného znečistenia)
- ADCA18 KUZIELOVÁ, Eva\*\* - TATARKO, Miroslav - SLANÝ, Michal - ŽEMLIČKA, Matúš - MÁŠILKO, Jiří - NOVOTNÝ, Radoslav - PALOU, Martin T.. Early and middle stages of multicomponent cement hydration under the effect of geothermal water and increased temperatures. In Geothermics, 2023, vol. 108, art. no. 102632, p. 1-13. (2022: 3.9 - IF, Q2 - JCR, 0.912 - SJR, Q1 - SJR). ISSN 0375-6505. Dostupné na: <https://doi.org/10.1016/j.geothermics.2022.102632> (APVV-19-0490 : Výskum a vývoj mnohozložkových cementových zmesí pre špeciálne konštrukčné materiály. APVV-15-0631 : Výskum vysokohodnotných cementových kompozitov za hydrotermálnych podmienok pre potenciálne využitie v hĺbkových vrtoch. VEGA 2/0032/21 : Štúdium degradácie viaczložkových cementových materiálov v dôsledku uhličitej korózie v podmienkach simulujúcich geotermálne vrty. VEGA 2/0017/21 : Materiálové zloženie a vlastnosti samozhutniteľných ťažkých betónov)
- ADCA19 KUZIELOVÁ, Eva\*\* - SLANÝ, Michal - ŽEMLIČKA, Matúš - MÁŠILKO, Jiří. Accelerated carbonation of oil-well cement blended with pozzolans and latent hydraulic materials. In Journal of Thermal Analysis and Calorimetry, 2023, vol. 148, no. 19, p. 9963–9977. (2022: 4.4 - IF, Q1 - JCR, 0.753 - SJR, Q1 - SJR). ISSN 1388-6150. Dostupné na: <https://doi.org/10.1007/s10973-023-12378-9> (APVV-19-0490 : Výskum a vývoj mnohozložkových cementových zmesí pre špeciálne konštrukčné materiály. VEGA 2/0032/21 : Štúdium degradácie viaczložkových cementových materiálov v dôsledku uhličitej korózie v podmienkach simulujúcich geotermálne vrty)
- ADCA20 LOPEZ-FARIAS, R. - VALDEZ, S. Ivvan - PAREDES-TAVARES, Jorge - SOLANO LAMPHAR, H. A.\*\*. Optimization of sensor locations for a light pollution monitoring network. In Journal of Quantitative Spectroscopy & Radiative Transfer, 2023, vol. 304, art. no. 108584. (2022: 2.3 - IF, Q2 - JCR, 0.498 - SJR, Q2 - SJR, karentované - CCC). (2023 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0022-4073. Dostupné na: <https://doi.org/10.1016/j.jqsrt.2023.108584>

- (APVV-18-0014 : Globálna charakterizácia svetelného znečistenia)
- ADCA21 MA, Liwa\* - SLANÝ, Michal\* - GUO, Rui - DU, Weichao - LI, Yongfei - CHEN, Gang\*\*. Study on synergistic catalysis of ex-situ catalyst and in-situ clay in aquathermolysis of water-heavy oil-ethanol at low temperature. In Chemical Engineering Journal, 2023, vol. 453, p. 139872-1-139872-11. (2022: 15.1 - IF, Q1 - JCR, 2.803 - SJR, Q1 - SJR). ISSN 1385-8947. Dostupné na: <https://doi.org/10.1016/j.cej.2022.139872>
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(APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)

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- ADCA30 SLÁDEK, Ján\*\* - SLÁDEK, Vladimír - HRYTSYNA, Maryan - PROFANT, Tomáš. Influence of flexoelectricity on interface crack problems under a dynamic load. In Engineering Fracture Mechanics, 2023, vol. 288, art. no. 109353. (2022: 5.4 - IF, Q1 - JCR, 1.281 - SJR, Q1 - SJR). ISSN 0013-7944. Dostupné na: <https://doi.org/10.1016/j.engfracmech.2023.109353> (APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
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Fan - KURUC, Michal - SLANÝ, Michal\*\* - CHEN, Gang\*\*. Use of Highly Dispersed Mixed Metal Hydroxide Gel Compared to Bentonite Based Gel for Application in Drilling Fluid under Ultra-High Temperatures. In Gels : open access journal, 2023, vol. 9, no. 7, art. no. 513, 15 p. (2022: 4.6 - IF, Q1 - JCR, 0.548 - SJR, Q2 - SJR). ISSN 2310-2861. Dostupné na: <https://doi.org/10.3390/gels9070513> (APVV-19-0490 : Výskum a vývoj mnohozložkových cementových zmesí pre špeciálne konštrukčné materiály)

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#### ADEB Vedecké práce v ostatných zahraničných časopisoch – neimpaktovaných

ADEB01 HOLLÝ, Ivan - PRIBILA, Martin - PALOU, Martin T. - ONDÁK, Adrián - PROKOP, Jaroslav. TALPA HOUSE : Prvá aplikácia betónu s recyklovaným kamenivom na Slovensku. In Beton : technologie - konstrukce - sanace, 2023, roč. 132, č. 4, s. 72-75. ISSN 1213-3116.

#### ADMA Vedecké práce v zahraničných impaktovaných časopisoch registrovaných v databázach Web of Science alebo SCOPUS

ADMA01 AL-KROOM, Hussein\*\* - ABD ELRAHMAN, Mohamed\*\* - TAWFIK, Taher Anwar\*\* - MEDDAH, Mohammed S. - SHALABY, Heba M. - SALEH, Alaa A. - ABDEL-GAWWAD, Hamdy A.\*\*. Transforming calcium carbonate-silicate wastes into steel protective coatings. In Construction and Building Materials, 2023, vol. 407, art. no. 133527, 14 p. (2022: 7.4 - IF, Q1 - JCR, 1.888 - SJR, Q1 - SJR). ISSN 0950-0618. Dostupné na: <https://doi.org/10.1016/j.conbuildmat.2023.133527>

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#### ADMB Vedecké práce v zahraničných neimpaktovaných časopisoch registrovaných v databázach Web of Science alebo SCOPUS

ADMB01 ČURPEK, Jakub - ČEKON, Miroslav\*\* - KURUC, Michal - SLÁVIK, Richard - JUNAID, Muhammad Faisal. Dynamic and Spectral Transmission Changes in a Glass System Coupled with Photovoltaics and Phase Change Materials Subjected to Solar Simulator Tests. In Environmental Science and Engineering : Proceedings of the 5th International Conference on Building Energy and Environment - COBEE 2022, 2023, p. 785–793. (2022: 0.125 - SJR, Q4 - SJR). ISSN 1863-5539. Dostupné na: [https://doi.org/10.1007/978-981-19-9822-5\\_84](https://doi.org/10.1007/978-981-19-9822-5_84) (VEGA 2/0095/20 : Výskum energetickej účinnosti inovatívnych BIPV/T článkov chladených PCM technológiou)

ADMB02 HRYTSYNA, Maryan - SLÁDEK, Ján - SLÁDEK, Vladimír - HRYTSYNA, Olha\*\*.

- A Higher-Order Beam Theory for Vibration Analysis of Nanobeams with Including Dynamic Flexoelectric Effect. In AIP Conference Proceedings, 2023, vol. 2950, 020030, 14 p. (2022: 0.164 - SJR). (2023 - WOS, SCOPUS). ISSN 0094-243X. Dostupné na: <https://doi.org/10.1063/5.0180785> (SK-UA-21-0010 : Efekt nano-, mikro- a mezo-nehomogenít na makro termomechanické chovanie sa kompozitných konštrukcií. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
- ADMB03 HRYSYNA, Olha. Nonclassical Linear Theories of Continuum Mechanics. In Journal of Mathematical Sciences, 2023, vol. 273, no. 1, p. 101-123. (2022: 0.314 - SJR, Q3 - SJR). ISSN 1072-3374. Dostupné na: <https://doi.org/10.1007/s10958-023-06487-x> (SK-CN-RD-18-0005 : Multiškálová flexoelektrická teória a nova metóda na detekciu mikrotrhlín v dielektrikach v realnom čase)
- ADMB04 HRYSYNA, Olha - SLÁDEK, Ján - SLÁDEK, Vladimír. Love Wave in a Layered Magneto-Electro-Elastic Structure with Flexomagnetism and Micro-Inertia Effect. In Mechanisms and Machine Science : Computational and Experimental Simulations in Engineering - Proceedings of ICCES 2022, 2023, vol. 119, p. 231-249. (2022: 0.189 - SJR, Q4 - SJR). ISSN 2211-0984. Dostupné na: [https://doi.org/10.1007/978-3-031-02097-1\\_18](https://doi.org/10.1007/978-3-031-02097-1_18) (VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
- ADMB05 HRYSYNA, Olha. The study of coupled fields in thermoelastic polarized structures within the framework of local gradient theory of dielectrics. In Applied Nanoscience, 2023, vol. 13, no. 7, p. 4827-4839. (2022: 0.485 - SJR, Q2 - SJR). ISSN 2190-5509. Dostupné na: <https://doi.org/10.1007/s13204-022-02625-0> (APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály)
- ADMB06 HRYSYNA, Olha\*\* - SLÁDEK, Ján - SLÁDEK, Vladimír - HRYSYNA, Maryan. Torsional Vibration of Nanotubes with Including Strain Gradient and Velocity Gradient Effects. In AIP Conference Proceedings, 2023, vol. 2950, art. no. 020005, 13 p. (2022: 0.164 - SJR). (2023 - WOS, SCOPUS). ISSN 0094-243X. Dostupné na: <https://doi.org/10.1063/5.0180787> (APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
- ADMB07 KURUC, Michal - ČEKON, Miroslav\*\* - ČURPEK, Jakub - SLÁVIK, Richard - MEDVEĎ, Igor. Spectral Test Method for Light Transmittance of Transparent Building Components Using Different Artificial Radiation Sources. In AIP Conference Proceedings, 2023, vol. 2801, art. no. 030004. (2022: 0.164 - SJR). (2023 - WOS, SCOPUS). ISSN 0094-243X. Dostupné na: <https://doi.org/10.1063/5.0146815>
- ADMB08 PROFANT, Tomáš - SLÁDEK, Ján - SLÁDEK, Vladimír. The flexoelectric effect for interface cracks between two dissimilar materials. In Advanced Topics in Mechanics of Materials, Structures and Construction : AToMech1 2023. - USA : Materials Research Forum, 2023, p. 99-108. ISBN 978-1644902585. Dostupné na: <https://doi.org/10.21741/9781644902592-11> (APVV-18-0004 : Optimálny návrh mikro/nano konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií. AToMech1 2023 : International Conference on Advanced Topics in Mechanics of Materials, Structures and Constructions)
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- konštrukcií pre metamateriály. VEGA 2/0061/20 : Multiškálové štúdium a modelovanie kompozitných makrokonštrukcií)
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**GHG Práce zverejnené spôsobom umožňujúcim hromadný prístup**

- GHG01 PALOU, Martin T.\*\* - NOVOTNÝ, Radoslav - KUZIELOVÁ, Eva - ŽEMLIČKA, Matúš - ČEPČIANSKA, Jana - PODHORSKÁ, Janette. The Effects of Supplementary Cementitious Materials on the Hydration Kinetics of G-Oil Cement. In ICCC 2023. 16th International Congress on the Chemistry of Cement 2023 : congress proceeding volume V. - Thailand Concrete Association, 2023, p. 13-16. (APVV-19-0490 : Výskum a vývoj mnohozložkových cementových zmesí pre špeciálne konštrukčné materiály. APVV-15-0631 : Výskum vysokohodnotných cementových kompozitov za hydrotermálnych podmienok pre potenciálne využitie v hĺbkových vrtoch. VEGA 2/0032/21 : Štúdium degradácie viaczložkových cementových materiálov v dôsledku uhličitej korózie v podmienkach simulujúcich geotermálne vrty. VEGA 2/0017/21 : Materiálové zloženie a vlastnosti samozhutniteľných ťažkých betónov. International Congress on the Chemistry of Cement 2023)

**GII Rôzne publikácie a dokumenty, ktoré nemožno zaradiť do žiadnej z predchádzajúcich kategórií**

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1. [1.1] ARANGO-DIAZ, Lucas - BEATRIZ PIDERIT, Maria - ORTIZ-CABEZAS, Alejandro. *Study of discrepancies in sky types for dynamic daylight analysis according to available climatic files. Colombia case*. In *REVISTA DE ARQUITECTURA-BOGOTA*, 2022, vol. 24, no. 1, pp. 84-97. ISSN 1657-0308. Dostupné na: <https://doi.org/10.14718/RevArq.2022.24.1.4050>., Registrované v: WOS
2. [1.1] BHATTACHARYA, Sourin - MAJUMDER, Sudipta - ROY, Subarna - SARDAR, Imran Hossain. *Estimation of daylight availability in Kolkata and approximation of indoor daylight levels for different daylighting methods*. In

*INTERNATIONAL JOURNAL OF SUSTAINABLE ENERGY*, 2022, vol. 41, no. 1, pp. 29-57. ISSN 1478-6451. Dostupné na: <https://doi.org/10.1080/14786451.2021.1894145>., Registrované v: WOS  
3. [1.1] HE, Y. - ZHANG, X. - QUAN, L. - SHI, D. - ZHANG, Y. Sky luminance distribution model based on the information method and ant colony system. In *LIGHTING RESEARCH & TECHNOLOGY*, 2022, vol. 54, no. 5, pp. 413-428. ISSN 1477-1535. Dostupné na: <https://doi.org/10.1177/14771535211038292>., Registrované v: WOS

#### AFD Publikované príspevky na domácich vedeckých konferenciách

- AFD01 DARULA, Stanislav - MALÍKOVÁ, Marta. Sunlight exposure: minimum solar altitude = Preslnenie: minimálna výška Slnka. In *LIGHT - SVETLO 2017 : proceedings of the 22nd international conference*. - Bratislava : Slovenská svetlotechnická spoločnosť, 2017, p. 13-18. ISBN 978-80-972865-0-7. (VEGA 2/0042/17. APVV 0118-12 : Simulovanie denného svetla v umelej oblohe)  
Citácie:  
1. [1.1] Süt, G. - ÖZTürk, L.D. Determining the impact of horizontal and vertical fins of office facades on visual and thermal comfort. In *MEGARON*. ISSN 1309-6915, 2022, vol. 17, no. 4, p. 644-657. Dostupné na: <https://doi.org/10.14744/MEGARON.2022.23356>., Registrované v: WOS

#### AGI Správy o vyriešených vedeckovýskumných úlohách

- AGI01 KITTLER, Richard - DARULA, Stanislav - PEREZ, Richard. A set of standard skies characterising daylight conditions for computer and energy conscious design. U.S. – Slovak Science and technology Cooperation 1991-1998 : Final Report. American-Slovak Grant Project US-SK 92052. Bratislava : ICA SAS, 1998. 240 p.  
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1. [1.1] ARANGO-DIAZ, Lucas - BEATRIZ PIDERIT, Maria - ORTIZ-CABEZAS, Alejandro. Study of discrepancies in sky types for dynamic daylight analysis according to available climatic files. Colombia case. In *REVISTA DE ARQUITECTURA-BOGOTA*, 2022, vol. 24, no. 1, pp. 84-97. ISSN 1657-0308. Dostupné na: <https://doi.org/10.14718/RevArq.2022.24.1.4050>., Registrované v: WOS  
2. [1.1] TSANG, E.K.W. - LI, D.H.W. - LI, S.Y. Predicting Daylight Illuminance for 15 CIE Standard Skies Using a Simple Software Tool. In *FRONTIERS IN SUSTAINABLE CITIES*. MAR 3 2022, vol. 4, art. no. 792997. Dostupné na: <https://doi.org/10.3389/frsc.2022.792997>., Registrované v: WOS

#### BAB Odborné knižné publikácie vydané v domácich vydavateľstvách

- BAB01 KITTLER, Richard - DARULA, Stanislav - PEREZ, Richard. A set of standard skies characterising daylight conditions for computer and energy conscious design. Bratislava : Polygrafia SAV, 1998. 52 p.  
Citácie:  
1. [1.1] AGHIMIEN, Emmanuel Imuetinyan - LI, Danny Hin Wa. Application of luminous efficacies for daylight illuminance data generation in subtropical Hong Kong. In *SMART AND SUSTAINABLE BUILT ENVIRONMENT*, 2022, vol. 11, no. 2, pp. 271-293. ISSN 2046-6099. Dostupné na: <https://doi.org/10.1108/SASBE-08-2021-0146>., Registrované v: WOS  
2. [1.1] HE, Y. - ZHANG, X. - QUAN, L. - SHI, D. - ZHANG, Y. Sky luminance

- distribution model based on the information method and ant colony system. In LIGHTING RESEARCH & TECHNOLOGY. ISSN 1477-1535, AUG 2022, vol. 54, no. 5, p. 413-428. Dostupné na: <https://doi.org/10.1177/14771535211038292>., Registrované v: WOS*
3. [1.1] LI, D.H.W. - LI, S.Y. - CHEN, W.Q. - LOU, S.W. Simple correlations between point daylight factor, average daylight factor and vertical daylight factor under all sky conditions and building design implications. In INDOOR AND BUILT ENVIRONMENT. ISSN 1420-326X, JUL 2022, vol. 31, no. 6, p. 1700-1714. Dostupné na: <https://doi.org/10.1177/1420326X211061111>., Registrované v: WOS
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5. [1.1] LOU, S.W. - LI, D.H.W. - ALSHAIBANI, K.A. - XING, H.W. - LI, Z.R. - HUANG, Y. - XIA, D.W. An all-sky luminance and radiance distribution model for built environment studies. In RENEWABLE ENERGY. ISSN 0960-1481, MAY 2022, vol. 190, p. 822-835. Dostupné na: <https://doi.org/10.1016/j.renene.2022.03.105>., Registrované v: WOS

#### **FAI Zostavovateľské práce knižného charakteru (bibliografie, encyklopédie, katalógy, slovníky, zborníky, atlasy ...)**

- FAI01 Singular Integrals in Boundary Element Methods. Edited by V. Sládek, J. Sládek. Southampton & Boston : WIT Press Publishing, 1998. 448 p. ISBN 978-1-85312-533-1
- Citácie:
1. [1.1] GORTSAS, T.V. - TSINOPOULOS, S.V. - POLYZOS, E. - PYL, L. - FOTIADIS, D.I. - POLYZOS, D. BEM evaluation of surface octahedral strains and internal strain gradients in 3D-printed scaffolds used for bone tissue regeneration. In JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS. ISSN 1751-6161, JAN 2022, vol. 125, art. no. 104919. Dostupné na: <https://doi.org/10.1016/j.jmbbm.2021.104919>., Registrované v: WOS
2. [1.1] OCHIAI, Y. Calculation of singular integrals on elements of three-dimensional problems by triple-reciprocity boundary element method. In ENGINEERING ANALYSIS WITH BOUNDARY ELEMENTS. ISSN 0955-7997, APR 2022, vol. 137, p. 139-146. Dostupné na: <https://doi.org/10.1016/j.enganabound.2022.02.003>., Registrované v: WOS
3. [1.1] RODOPOULOS, D.C. - GORTSAS, T.V. - TSINOPOULOS, S.V. - POLYZOS, D. Numerical evaluation of strain gradients in classical elasticity through the Boundary Element Method. In EUROPEAN JOURNAL OF MECHANICS A-SOLIDS. ISSN 0997-7538, MAR-APR 2021, vol. 86, art. no. 104178. Dostupné na: <https://doi.org/10.1016/j.euromechsol.2020.104178>., Registrované v: WOS

#### **GHG Práce zverejnené spôsobom umožňujúcim hromadný prístup**

- GHG01 KORONTHÁLYOVÁ, Oľga. The coupled effect of hygroscopic materials and ventilation regime on indoor humidity. In IEA Annex 41 report A41-T1-SI-06-1. - 2006. Názov z obrazovky. Dostupné na internete: <http://www.kuleuven.be/bwf/projects/annex41/protected/data/SAS%20Apr%202006%20Paper%20A41-T1-SI-06-1.pdf>
- Citácie:

1. [1.1] HUERTO-CARDENAS, H.E. - LEONFORTE, F. - DEL PERO, C. - ASTE, N. - BUZZETTI, M. - ADHIKARI, R.S. - MIGLIOLI, A. *Impact of Moisture Buffering Effect in the Calibration of Historical Buildings Energy Models: A Case Study. In JOURNAL OF SUSTAINABLE DEVELOPMENT OF ENERGY WATER AND ENVIRONMENT SYSTEMS-JSDEWES. ISSN 1848-9257, 2021, vol. 9, no. 3, art. no. 1080370. Dostupné na: <https://doi.org/10.13044/j.sdewes.d8.0370>., Registrované v: WOS*

## **Príloha A-4**

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

#### Semestrálne prednášky:

doc. Ing. Stanislav Darula, CSc.

Názov semestr. predmetu: Building Physics - Daylighting

Počet hodín za semester: 10

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra konštrukcií pozemných stavieb

doc. Ing. Miroslav Čekon, PhD.

Názov semestr. predmetu: Progresívne materiály a technológie budov

Počet hodín za semester: 14

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materialového inžinierstva a fyziky

doc. Ing. Miroslav Čekon, PhD.

Názov semestr. predmetu: Stavebná tepelná technika

Počet hodín za semester: 10

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materialového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Building Materials

Počet hodín za semester: 26

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Fyzika 2

Počet hodín za semester: 6

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Progresívne materiály a technológie budov

Počet hodín za semester: 6

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Stavebná tepelná technika

Počet hodín za semester: 6

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Prof.Dr.Ing. Martin-Tchingnabé Palou

Názov semestr. predmetu: Priemyselná anorganická technológia

Počet hodín za semester: 12

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Ústav anorganickej



## chémie, technológie a materiálov

Prof.Dr.Ing. Martin-Tchingnabé Palou

Názov semestr. predmetu: Špeciálna technológia anorganických materiálov

Počet hodín za semester: 12

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Ústav anorganickej chémie, technológie a materiálov

Ing. Michal Slaný, PhD.

Názov semestr. predmetu: Chémia stavebných materiálov

Počet hodín za semester: 8

Názov katedry a vysokej školy: Stavebná fakulta STU, Katedra materiálového inžinierstva a fyziky

Ing. Michal Slaný, PhD.

Názov semestr. predmetu: Štruktúra stavebných materiálov

Počet hodín za semester: 20

Názov katedry a vysokej školy: Stavebná fakulta STU, Katedra materiálového inžinierstva a fyziky

Ing. Richard Slávik, PhD.

Názov semestr. predmetu: Building Physics

Počet hodín za semester: 26

Názov katedry a vysokej školy: Mendělova univerzita v Brně, Lesnická a dřevařská fakulta v Brně, Ústav nauky o dřevě a dřevařských technologiích

Ing. Richard Slávik, PhD.

Názov semestr. predmetu: Energetické vlastnosti budov

Počet hodín za semester: 26

Názov katedry a vysokej školy: Mendělova univerzita v Brně, Lesnická a dřevařská fakulta v Brně, Ústav nauky o dřevě a dřevařských technologiích

Ing. Richard Slávik, PhD.

Názov semestr. predmetu: Tepelná technika budov

Počet hodín za semester: 26

Názov katedry a vysokej školy: Mendělova univerzita v Brně, Lesnická a dřevařská fakulta v Brně, Ústav nauky o dřevě a dřevařských technologiích

### Semestrálne cvičenia:

doc. Ing. Miroslav Čekon, PhD.

Názov semestr. predmetu: Progresívne materiály a technológie budov

Počet hodín za semester: 12

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materialového inžinierstva a fyziky

doc. Ing. Miroslav Čekon, PhD.

Názov semestr. predmetu: Stavebná tepelná technika

Počet hodín za semester: 16

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materialového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Ateliérová tvorba

Počet hodín za semester: 26

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Fyzika 2

Počet hodín za semester: 8

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Physics

Počet hodín za semester: 26

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Progresívne materiály a technológie budov

Počet hodín za semester: 13

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Jakub Čurpek, PhD.

Názov semestr. predmetu: Stavebná tepelná technika

Počet hodín za semester: 26

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Michal Slaný, PhD.

Názov semestr. predmetu: Stavebné materiály 1

Počet hodín za semester: 4

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materiálového inžinierstva a fyziky

Ing. Richard Slávik, PhD.

Názov semestr. predmetu: Energetické vlastnosti budov

Počet hodín za semester: 26

Názov katedry a vysokej školy: Mendělova univerzita v Brně, Lesnická a dřevařská fakulta v Brně, Ústav nauky o dřevě a dřevařských technologiích

Ing. Richard Slávik, PhD.

Názov semestr. predmetu: Tepelná technika budov

Počet hodín za semester: 26

Názov katedry a vysokej školy: Mendělova univerzita v Brně, Lesnická a dřevařská fakulta v Brně, Ústav nauky o dřevě a dřevařských technologiích

#### Semináře:

doc. Ing. Miroslav Čekon, PhD.

Názov semestr. predmetu: Fyzikálne princípy merania

Počet hodín za semester: 12

Názov katedry a vysokej školy: Slovenská technická univerzita v Bratislave, Katedra materialového inžinierstva a fyziky

Ing. Ladislav Sátor, PhD.

Názov semestr. predmetu: Seminár z teoretickej mechaniky

Počet hodín za semester: 26

Názov katedry a vysokej školy: Žilinská univerzita v Žiline, Stavebná fakulta

Terénne cvičenia:

Individuálne prednášky:

doc. Ing. Stanislav Darula, CSc.

Názov semestr. predmetu: Svetelná technika

Počet hodín za semester: 2

Názov katedry a vysokej školy: Vysoké učení technické v Brne, ČR, FEKT

**Príloha A-5****Medzinárodná mobilita organizácie****(A) Vyslanie vedeckých pracovníkov do zahraničia na základe dohôd:**

<b>Krajina</b>	<b>D r u h d o h o d y</b>					
	<b>MAD, KD, VTS</b>		<b>Medziústavná</b>		<b>Ostatné</b>	
	<b>Meno pracovníka</b>	<b>Počet dní</b>	<b>Meno pracovníka</b>	<b>Počet dní</b>	<b>Meno pracovníka</b>	<b>Počet dní</b>
					Martin T. Palou Naresuan University, Thailand	3
					Jana Čepčianska VUSTAH Brno, ČR	30
<b>Počet vyslaní spolu</b>					2	33

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

<b>Krajina</b>	<b>D r u h d o h o d y</b>					
	<b>MAD, KD, VTS</b>		<b>Medziústavná</b>		<b>Ostatné</b>	
	<b>Meno pracovníka</b>	<b>Počet dní</b>	<b>Meno pracovníka</b>	<b>Počet dní</b>	<b>Meno pracovníka</b>	<b>Počet dní</b>
					FA ČVUT Praha – 3 osoby	1
<b>Počet prijatí spolu</b>					1	1

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

<b>Krajina</b>	<b>Názov konferencie</b>	<b>Meno pracovníka</b>	<b>Počet dní</b>
Czech republik	29th International Conference "Engineering Mechanics 2023"	V. Sládek	3
Czech republik	29th International Conference "Engineering Mechanics 2023"	J. Sládek	3
Pol'sko	XXVIII Conference on Computer Methods in Materials Technology	J. Sládek	5
Taliansko	6th World Congress on Materials Science and Engineering	O. Hrytsyna	6
Španielsko	Int. Conf. on Mechanical, Manufacturing, Industrial	M. Hrytsyna	6

	and Civil Engineering (ICMMICE - 23)		
Ukrajina	Int. Research and Practice Conf. "Nanotechnology and Nanomaterials" (NANO-2023)	M. Hrytsyna	4
Balatonfüred, Maďarsko	In JTACC 2023 – 3rd Journal of Thermal Analysis and Calorimetry Conference and 9th V4 (Joint Czech-Hungarian-Polish-S lovakian) Thermoanalytical Conference	Martin T. Palou Jana Čepčianska Kristína Compeľová	3
Brno, ČR	JUNIORSTAV 2023 - 25. mezinárodní doktorská konference stavebního inženýrství	Jana Čepčianska	1
Brno, ČR	Non-Traditional Cement & Concrete VII	Martin T. Palou	3
Szczyrk, Poľsko	The first kickoff meeting of the H2GEO project	Martin T. Palou Matúš Žemlička	2
Ljubljana , Slovinsko	Kick off meeting Interreg Central Europe ReBuilt _ agenda	Martin T. Palou	3
ČR	Kvalita cementu 2023 : XVI. ročník odborného semináře	Martin T. Palou	2
Thajsko	ICCC 2023. 16 <sup>th</sup> International Congress on the Chemistry of Cement 2023	Martin T. Palou	9
<b>Spolu</b>	<b>11</b>	<b>8</b>	<b>50</b>

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

Skratky použité v tabuľke C:



**Príloha A-6****Vedecko-popularizačná činnosť pracovníkov organizácie**

<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>
J. Čurpek		PB	Žijem vedu naživo 2023	Prírodovedecká fakulta Univerzity Komenského	1/2023
M. Kocifaj		IN	Nový model zlepšuje predpovedanie svetelného znečistenia	<a href="https://vedanadosah.cvtisr.sk/priroda/vesmir/novy-model-zlepsuje-predpovedanie-svetelneho-znečistenia/">https://vedanadosah.cvtisr.sk/priroda/vesmir/novy-model-zlepsuje-predpovedanie-svetelneho-znečistenia/</a>	20.3.2023
M. Kocifaj		IN	Tvary aerosólových častíc výrazne ovplyvňujú svetelný smog	<a href="https://www.sav.sk/?lang=sk&amp;doc=services-news&amp;source_no=20&amp;news_no=11094">https://www.sav.sk/?lang=sk&amp;doc=services-news&amp;source_no=20&amp;news_no=11094</a>	21.3.2023
M. Kocifaj		IN	Vedci zdokonaľujú techniky merania svetelného znečistenia	<a href="https://fmph.uniba.sk/detail-novinky/back_to_page/vedecke-skupiny-a-osobnosti/article/vedci-zdokonaluju-techniky-merania-svetelneho-znečistenia/">https://fmph.uniba.sk/detail-novinky/back_to_page/vedecke-skupiny-a-osobnosti/article/vedci-zdokonaluju-techniky-merania-svetelneho-znečistenia/</a>	16.6.2023
L. Kómar		PB	Ako svetlo znečisťuje prostredie	Týždeň vedy a techniky 2023	9.11.2023
M. Slaný		PB	Íly, ílové minerály a geopolyméry	Týždeň vedy a techniky 2023	9.11.2023
L. Sátor		PB	Progresívne počítačové modelovanie a simulácia v mechanike mikro/nano konštrukcií	Týždeň vedy a techniky 2023	9.11.2023
L. Kómar	L. Sátor, M. Repka, M. Slaný, R. Slávik, M. Čekon, M.-T. Palou	iné	Európska Noc Výskumníkov	<a href="https://www.nocvyskumnikov.sk/novinky/2023/special-europejskej-noci-vyskumnikov-2023.html">https://www.nocvyskumnikov.sk/novinky/2023/special-europejskej-noci-vyskumnikov-2023.html</a>	29.9.2023
L. Kómar	L. Sátor, O. Hrytsina, M. Repka, M. Slaný, R. Slávik, J. Čurpek, M. Čekon	iné	Víkend so SAV	<a href="https://www.sav.sk/?lang=sk&amp;doc=services-news&amp;source_no=20&amp;news_no=11285">https://www.sav.sk/?lang=sk&amp;doc=services-news&amp;source_no=20&amp;news_no=11285</a>	23-24.6.2023

L. Kómar	L. Sátor, M. Slaný, A. Nečas, B. Martinovičová, D. Papán, R. Slávik	EX	Deň otvorených dveri 2023	Časopis Akadémia 6/2023, str. 34	9.11.2023
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<sup>1</sup> PB - prednáška/beseda, TL - tlač, TV - televízia, RO - rozhlas, IN - internet, EX - exkurzia, PU - publikácia, MM - multimédia, DO - dokumentárny film

**Príloha A-7**

**Vyznamenania, ceny a iné ocenenia udelené organizácii a jej pracovníkom v roku 2023**

**Domáce ocenenia**

**Ocenenia SAV**

doc. Ing. Stanislav Darula, CSc. - Významná osobnosť SAV za rok 2023.

**Iné domáce ocenenia**

**Medzinárodné ocenenia**

*Uvádzajte v štruktúre: názov ocenenia, udeľujúca inštitúcia, meno a priezvisko ocenennej osoby.*