TRENČIANSKA UNIVERZITA ALEXANDRA DUBČEKA
V TRENČÍNE

PODKLADY K ŽIADOSTI O ZAČATIE HABILITAČNÉHO KONANIA V ŠTUDIJNOM ODBORE 2802 ANORGANICKÁ TECHNOLÓGIA A MATERIÁLY

Ing. Róbert KLEMENT, PhD.

TRENČÍN 2018

OBSAH

I. ADMINISTRATÍVNE POŽIADAVKY

Životopis

Curriculum Vitae

Osobné údaje

Meno a Priezvisko	Robert Klement
Adresa	
Telefón	
E-mail	
Štátna príslušnosť	Slovenská republika
Dátum narodenia	1970
Pohlavie	Mužské

Odborné zameranie

Výskum a vývoj v oblasti materiálovej chémie, so zameraním na pokročilé anorganické nekovové materiály, hlavne sklo, oxidová keramika a kompozitné materiály. Aplikácia fyzikálno-chemických metód (spektrálnych, elektrochemických a spektroelektrochemických) pri výskume skiel, keramických a fotoluminiscenčných materiálov.

Pracovné skúsenosti

Od – do	2017 – súčasnosť
Pracovné zaradenie	Vedúci oddelenia Funkčných materiálov FUNGLASS, TnUAD
Hlavné činnosti a zodpovednosť	Riadenie oddelenia funkčných materiálov z pohľadu personálneho, finančného zabezpečenia oddelenia, riadenia výskumných úloh oddelenia Výskum v oblasti fotoluminiscenčných vlastností materiálov pre pevno-látkové svetelné zdroje pc-WLED) a funkčných materiálov Koordinácia, riadenie a riešenie výskumných úloh v rámci riešených výskumných projektov/grantov na oddelení Podávanie a získavanie výskumných projektov a grantov Publikovanie výsledkov výskumu v odborných časopisoch, knižničnej literatúre, konferenčných zborníkoch, prezentácia výsledkov výskumu na domácich a zahraničných konferenciách Odborné vedenie študentov bakalárskeho, inžinierskeho a doktorandského stupňa v rámci študijného programu Anorganické technológie a nekovové materiály, prednášky a semináre v rámci II. a III. stupňa štúdia (Molekulová spektroskopia, Koloidná chémia a chémia povrchov)
Názov a adresa zamestnávateľa	Trenčianska univerzita A. Dubčeka v Trenčíne, Študentská 2, 911 50 Trenčín
Odvetvie	Univerzita – školstvo a vzdelávanie

Od – do	2008 – 2017
Pracovné zaradenie	Samostatný vedecký pracovník Vitrum Laugaricio (VILA) – Centrum kompetencie skla UACH SAV, TnUAD, FCHPT STU
Hlavné činnosti a zodpovednosť	Výskum v oblasti fotoluminiscenčných vlastností materiálov pre pevno-látkové svetelné zdroje pc-WLED) Koordinácia, riadenie a riešenie výskumných úloh v rámci riešených výskumných projektov/grantov Podávanie a získavanie výskumných projektov a grantov Publikovanie výsledkov výskumu v odborných časopisoch, knižničnej literatúre, konferenčných zborníkoch, prezentácia výsledkov výskumu na domácich a zahraničných konferenciách Odborné vedenie študentov bakalárskeho, inžinierskeho a doktorandského stupňa v rámci študijného programu Anorganické technológie a nekovové materiály, prednášky a semináre v rámci II. a III. stupňa štúdia (Molekulová spektroskopia, Koloidná chémia a chémia povrchov)
Názov a adresa zamestnávateľa	Trenčianska univerzita A. Dubčeka v Trenčíne, Študentská 2, 911 50 Trenčín

Odvetvie	Univerzita – školstvo a vzdelávanie
Od – do	2003 – 2008
Pracovné zaradenie	Vedecký pracovník Vitrum Laugaricio (VILA) – Centrum kompetencie skla UACH SAV, TnUAD, FCHPT STU
Hlavné činnosti a zodpovednosť	Riešenie výskumných úloh v rámci riešených výskumných projektov/grantov Publikovanie výsledkov výskumu v odborných časopisoch, knižničnej literatúre, konferenčných zborníkoch, prezentácia výsledkov výskumu na domácich a zahraničných konferenciách Odborné vedenie študentov bakalárskeho, inžinierskeho stupňa v rámci študijného programu Anorganické technológie a nekovové materiály
Názov a adresa zamestnávateľa	Trenčianska univerzita A. Dubčeka v Trenčíne, Študentská 2, 911 50 Trenčín
Odvetvie	Univerzita – školstvo a vzdelávanie
Od – do	2001 - 2003
Pracovné zaradenie	Vedecký pracovník (post-doc)
Hlavné činnosti a zodpovednosť	Výskum v oblasti funkcionalizácie uhlíkových nanorúrok polymérmi Publikovanie výsledkov výskumu v odborných časopisoch, knižničnej literatúre, konferenčných zborníkoch, prezentácia výsledkov výskumu na domácich a zahraničných konferenciách
Názov a adresa zamestnávateľa	Institute Charles Sadron UPR-22 CNRS, 6 Rue Boussinglault, 67083 Strasbourg Cedex (France)
Odvetvie	Francúzska akadémia vied (CRNS)
Od – do	1993 – 2001
Pracovné zaradenie	Vedecký pracovník a asistent na katedre Fyzikálnej chémie FCHPT STU Bratislava
Hlavné činnosti a zodpovednosť	Výskum v oblasti spektroskopie (EPR, UV-VIS-NIR) a elektrochémie koordinačných zlúčenín mimikujúcich funkciu metalo-proteínov v živých organizmoch Publikovanie výsledkov výskumu v odborných časopisoch, knižničnej literatúre, konferenčných zborníkoch, prezentácia výsledkov výskumu na domácich a zahraničných konferenciách Vedenie cvičení a laboratórnych cvičení študentov bakalárskeho a inžinierskeho štúdia (v oblasti fyzikálna chémie, všeobecná a anorganická chémia a iné predmety)
Názov a adresa zamestnávateľa	Fakulta chemickej a potravinárskej technológie, Slovenskej technickej univerzity, Radlinského 9, SK-812 37 Bratislava
Odvetvie	Univerzita – školstvo a vzdelávanie

Vzdelávanie a príprava

Od – do	2008
Názov získanej kvalifikácie	Vedecký kvalifikačný stupeň IIa
Názov organizácie ktorá stupeň priznala	Slovenská akadémia vied, Predsedníctvo SAV, Štefánikova 49, 814 38 Bratislava
Od – do	2001
Názov získanej kvalifikácie	vedecko-akademická hodnosť: Philosophiae doctor (PhD.)
Vedný odbor	14-04-9 Fyzikálna chémia
Názov dizertačnej práce	Štúdium štvorcovo-planárnych komplexných zlúčenín Cu(II) a Co(II) s derivátmi ligandov typu Schiffových báz Salen a Tetrahydrosalen Study of the square-planar Cu(II) and Co(II) complexes with derivatives of the Schiff base type ligands Salen and Tetrahydrosalen
Názov organizácie ktorá poskytla vzdelávanie a stupeň/titul priznala	Fakulta chemickej a potravinárskej technológie, Slovenskej technickej univerzity, Radlinského 9, SK-812 37 Bratislava
Stupeň vzdelania v národnej (medzinárodnej) klasifikácii	III. stupeň vysokoškolského vzdelávania (Level 6 according to ISCED 1997)
Od – do	1988-1993
Názov získanej kvalifikácie	akademický titul: Inžinier (Ing.)
Vedný odbor	Technická fyzikálna a analytická chémia (zameranie fyzikálna chémia)
Názov diplomovej práce	ESR spektroskopia komplexov Cu(II) a Co(II) s ligandami typu Schiffových báz ESR spectroscopy of Cu(II) and Co(II) complexes with Schiff base type ligands

Názov organizácie ktorá poskytla vzdelávanie a stupeň/titul priznala Stupeň vzdelania v národnej (medzinárodnej) klasifikácii	Fakulta chemickej a potravinárskej technológie, Slovenskej technickej univerzity, Radlinského 9, SK-812 37 Bratislava II. stupeň vysokoškolského vzdelávania (Level 5 according to ISCED 1997)
Od – do Názov organizácie poskytujúcej vzdelávanie Stupeň vzdelania v národnej (medzinárodnej) klasifikácii	1984-1988 Stredná priemyselná škola chemická, Banská Štiavnica Úplné stredné odborné vzdelanie s maturitou (Level 3 according to ISCED 1997)

Osobné zručnosti a kompetencie

Jazyk(y)

Materinský jazyk	slovenský
Anglický jazyk	**Understanding:** Listening, Reading (C2 proficient user) **Speaking:** Spoken interaction/production (C2 proficient user) **Writing:** (C2 proficient user)
Sociálne zručnosti a kompetencie	Flexibilita, prispôsobivosť, dobré komunikačné schopnosti
Organizačné zručnosti a kompetencie	Vedenie študentov pri záverečných prácach (Bc, Ing., PhD.); organizácia pedagogickej a výskumnej činnosti; riadenie menšej pracovnej skupiny; organizácia, vedenie a finančný management projektov/grantov základného výskumu (zodpovedný riešiteľ: (VEGA, APVV) a spoluriešiteľ: (VEGA, APVV, projektov štrukturálnych fondov Ceksim, Pvtechsklo a iné)); organizácia medzinárodných a domácich sklárskych konferencií (spoluorganizátor 3 medzinárodných konferencií o skle); písanie a podávanie grantov/projektov, spolupráca na príprave projektov.
Technické zručnosti a kompetencie	Obsluha bežného laboratórneho vybavenia v chemickom a materiálovom laboratóriu (pH meter, konduktometer, vysokoteplotné pece pracujúce v bežnej, inertnej a redukčnej atmosfére). *Syntéza materiálov:* špeciálne metódy prípravy polymérov (ATRP – Atom Transfer Radical Polymerization, iónová polymerizácia); syntéza práškových oxidových prekurzorov (Pechiniho sól-gél metóda); syntéza porfirínových ligandov a komplexov, prečišťovanie SWNT (uhlíkové nanorúrky) a ich funkcionalizácia (kovalentná aj nekovalentná); bežné laboratórne techniky charakterizácie syntetizovaných produktov (^{1}H, ^{13}C- NMR, elementárna analýza, FTIR) . *Experimentálne merania: Spektroskopické metódy* (EPR spektroskopia (EPR spektrometer EMX (X-pásmo) Bruker), UV-VIS-NIR (Cary 5000 + príslušenstvo) a IR spektroskopia, fluorescenčná spektroskopia – steady state, time resolved – TCSPC (spektrometer Fluorolog FL3-21, Horiba); *Elektrochemické metódy* – elektrochemické merania (napr. voltampérometrické techniky, a iné) vo vodných a nevodných roztokoch, sklených taveninách, impedančná spektroskopia (elektrochemická stanica PAR 273, a Modulab ECS/MTS); *Termická analýza* (DTA, DSC - Netzsch STA 449 F1 Jupiter TG/DTA/DSC simultánny analyzátor); *Optická mikroskopia*; *Prášková XRD* aj s využitím synchrotróneho žiarenia a HT XRD (High Temperature XRD) – skúsenosti získané na pracoviskách KFCH CHTF STU Bratislava, TnUAD Trenčín a počas zahraničných pobytov TU Darmstadt, ICS Strasbourg, Diamond Synchrotron Light Source Harwell, UK. Zabezpečovanie prednášok, laboratórnych cvičení a seminárov technických predmetov. Vedenie študentov pri záverečných prácach (Bc., Ing., PhD.) Oponovanie článkov pre redakcie vedeckých časopisov (Ceramics International, MRS Communication, Optical Express, Physics and Chemistry of Glasses: European Journal of Glass Science and Technology)

Počítačové zručnosti a kompetencie	Rutinná práca na PC, OS Windows, MS Office(Word, Excel, Outlook and PowerPoint), Microcalc Origin, rutinná práca s grafickým software, ďalšie špeciálne software: Statistica, Factsage (TD modelling software), ISIS draw, ChemDraw (chemical formulae drawing), Fortran 77 and 90 (Lahey 90, Fortran Power Station), WinEPR, QPOW (software for treating and simulation of EPR spectra), MestreNova, DMFIT (software for treating and simulation of NMR spectra), HighScore, SearchMatch, FullProf Suite (software for treating and simulation of XRD patterns), PeakFit (special fitting and deconvolution software), electrochemical software, fluorescence software (FluorEssence, DAS6) etc. Skills obtained by study hour.
Vodičský preukaz	B
Osobné záujmy	
Doplňujúce informácie	**Pedagogické aktivity:** od 1993 doteraz: Všeobecná a anorganická chémia – laboratórne cvičenia; Všeobecná chémia – semináre; Chemická fyzika (základy analytickej a kvantovej mechaniky) – semináre; Fyzikálna chémia – prednášky, semináre, laboratórne cvičenia; Koloidná chémia a fyzikálna chémia povrchov – prednášky, semináre (II. a III. stupeň VŠ štúdia); Molekulová spektroskopia – prednášky (III. stupeň VŠ štúdia); Anorganická technológia a materiály – prednášky (III. stupeň VŠ štúdia); Chemické inžinierstvo I, II – semináre; Školenie Bc. Ing. a PhD. študentov: Obhájené záverečné práce – 2 Bc. práce, 6 Ing. prác, 3 PhD práce (vo všetkých prácach školiteľ) **Stáže v zahraničí:** University of Gent (Department of Inorganic and Physical Chemistry), Ghent, Belgium, 2013 (1 mesiac) CNRS – Institute Charles Sadron, Strasbourg, France, 2001-2003 (2 roky) Liverpool John Moores University (School of Chemical and Physical Sciences), Liverpool, UK, 1995 (1 mesiac) Technical University Darmstadt (Department of Inorganic Chemistry), Darmstadt, 1997, 1998 (1 mesiac) **Vedenie výskumných projektov (ako zodpovedný riešiteľ):** 2 ako zodpovedný riešiteľ, 10 ako spoluriešiteľ. Názov projektu: Sklené a sklokeramické materiály na báze aluminátov vzácnych zemín s výnimočnými mechanickými a optickými vlastnosťami (Rare-earth aluminate-based glass and glass-ceramics materials with exceptional mechanical and optical properties) Grantová schéma: VEGA 1/0603/09 Doba riešenia: 01/2009-12/2011 Rozpočet projektu: 71 544 EUR Názov projektu: Nové anorganické fosfory na báze hlinitanov vzácnych zemín pre aplikácie v LED diódach vyžarujúcich biele svetlo (Novel rare-earth aluminates-based inorganic phosphors for white light-emitting diodes (pc-WLEDs)) Grantová schéma: VEGA 1/0631/14 Doba riešenia: 01/2014-12/2017 Rozpočet projektu: 45 074 EUR **Členstvo vo vedeckých spoločnostiach:** Slovenská sklárska spoločnosť (2004-2014); člen predstavenstva (2004-2011) Slovenská silikátová spoločnosť (člen, 2017-) **Člen organizačných výborov konferencií:**

Norbert Kreidl Memorial Conference, 23.-26.6.2004, Trenčín (medzinárodná)
8. ESG conference, 22-26.6.2008, Trenčín (medzinárodná)
Slovenská a česká konferencia o skle, 30.11.-2.12.2011, Trenčianske Teplice (medzinárodná)

Výskumné zameranie a profesionálny záujem:

Fotoluminiscenčné materiály pre pevnolátkové sveteľné zdroje a materiály s dlhou dobou dosvitu pre signálne značenia a biomedicínske aplikácie (forfory pre pc-WLED a long lasting phosphors – fosfory s dlhou dobou dosvitu luminiscencie)

Fotoluminiscencia v materiáloch: sklá, práškové materiály, tenké vrstvy/filmy

Spektroskopické a elektrochemické techniky relevantné pri výskume skiel, sklených tavenín a polykryštalických materiálov.

Chemická funkcionalizácia sklených povrchov

Spektroskopia anorganických materiálov (UV-VIS-NIR, fluorescenčná spektroskopia – steady state a time resolved (TCSPC))

Komplexné zlúčeniny prechodných kovov s ligandami majúcimi biologickú relevanciu (ako modelové systémy) študované v pevnom stave a roztokoch (kvapalných a zmrazených) – spektrálne techniky (ESR, UV-VIS-NIR, fluorescencia), elektrochemické techniky (vo vodných a nevodných prostrediach)

Elektrochémia a spektroelektrochémia v nevodných roztokoch (hlavne cyklická voltampérometria, Square-Wave voltampérometia a iné, UV-VIS-NIR/fluorescence spektroelektrochémia)

Zahraničná a domáca spolupráca:

CEITEC
Otto Schott Institute Jena

EU SAV Bratislava
UACH SAV
FCHPT STU Bratislava

Publikačná činnosť:

Výsledky vedeckej práce priebežne od roku 1995 publikuje v zahraničných vedeckých karentovaných, indexovaných, domácich časopisoch, na zahraničných a domácich konferenciách, kapitolách v monografiách. Celkový počet ADC publikácií: 34; ADE, ADF: 7; Konferenčné príspevky (AED, AFC, AFD, AFH, AFG): 113; Kapitoly v monografiách (ABC, ABD): 3; Editované zborníky (FAI): 2; VŠ učebnice (ACB): 1
SCI citácie (Scopus, WOS): 403; H-index: 12

Vybrané publikácie:

R. Klement, F. Stock, H. Elias, H. Paulus, P. Pelikán, M. Valko, M. Mazúr:
Copper(II) Complexes with Derivatives of Salen and Tetrahydrosalen: A Spectroscopic, Electrochemical and Structural Study.
Polyhedron **1999**, *18*, 3617–3628.

A. Huber, L. Müller, H. Elias, R. Klement, M. Valko:
Cobalt(II) Complexes with Substituted Salen-Type Ligands and Their Dioxygen Affinity in N,N-Dimethylformamide at Various Temperatures.
Eur. J. Inorg. Chem. **2005**, 1459–1467.

P. Švančárek, R. Klement, D. Galusek:
Photoluminescence of $(ZnO)_{X-Z}(SiO_2)_Y$:$(MnO)_Z$ green phosphors prepared by direct thermal synthesis: The effect of ZnO/SiO_2 ratio and Mn^{2+} concentration on luminescence.
Ceram. Int. **2016**, *42*, 16852–16860.

K. Haladejová, A. Prnová, R. Klement, W.-H. Tuan, S.-J. Shih, D. Galusek:
Aluminate glass based phosphors for LED applications
J. Eur. Ceram. Soc. **2016**, *36*, 2969–2973.

K. Drdlíková, R. Klement, D. Drdlík, T. Spousta, D. Galusek, K. Maca:
Luminescent Er^{3+} doped transparent alumina ceramics
J. Eur. Ceram. Soc. **2017**, *37*, 2695–2703.

Miesto	Dátum	Meno, priezvisko, titul (podpis)
V Trenčíne	15.5.2018	Ing. Robert Klement, PhD.

Doklady o vysokoškolskom vzdelaní II. stupňa

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Doklad o vysokoškolskom vzdelaní III. stupňa

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Doklad o priznaní vedeckého kvalifikačného stupňa IIa (VKS IIa)

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II. PEDAGOGICKÁ AKTIVITA

Žiadateľ o habilitačné konanie má viac ako 20-ročnú vysokoškolskú pedagogickú prax nadobudnutú počas pôsobenia na katedre fyzikálnej chémie FCHPT STU Bratislava a na TnUAD Trenčín.

Prehľad pedagogickej činnosti na vysokej škole:

- Všeobecná a anorganická chémia – laboratórne cvičenia (CHTF STU Bratislava)
- Všeobecná chémia – semináre (MtF STU Trnava)
- Výpočtová technika – semináre (CHTF STU Bratislava)
- Chemická fyzika (základy analytickej a kvantovej mechaniky) – semináre (CHTF STU Bratislava)
- Fyzikálna chémia – laboratórne cvičenia (CHTF STU Bratislava)
- Koloidná chémia a fyzikálna chémia povrchov – prednášky, semináre (FPT TnUAD Púchov)
- Chemické inžinierstvo I a II – semináre (FPT TnUAD Púchov)
- Fyzikálna chémia – prednášky, semináre (MtF STU Trnava)
- Anorganická technológia a materiály – prednášky III.st. (PhD., doktorandi) VŠ štúdia (VILA TnUAD Trenčín)
- Molekulová spektroskopia – prednášky III.st. (PhD., doktorandi) VŠ štúdia (VILA TnUAD Trenčín)
- Koloidná chémia a fyzikálna chémia povrchov – prednášky III.st. (PhD., doktorandi) VŠ štúdia (VILA TnUAD Trenčín)
- Koloidná chémia a fyzikálna chémia povrchov – prednášky II.st. (Ing.) VŠ štúdia (VILA TnUAD Trenčín)

Akademický rok	Semester	Predmet	Typ výuky	VŠ
1993/1994	ZS	Všeobecná a anorganická chémia	LC	FCHPT STU
	LS	Výpočtová technika	C	FCHPT STU
1994/1995	ZS	Fyzikálna chémia I.	LC	FCHPT STU
	LS	Fyzikálna chémia II.	LC	FCHPT STU
1995/1996	ZS	Všeobecná chémia	C	MtF STU
	LS	Chemická fyzika I.	C	FCHPT STU
1996/1997	ZS	Všeobecná chémia	C	MtF STU
	LS	Fyzikálna chémia II.	LC	FCHPT STU
1997/1998	ZS	Fyzikálna chémia I.	LC	FCHPT STU
	LS	Fyzikálna chémia II.	LC	FCHPT STU
1998/1999	ZS	Fyzikálna chémia I.	LC	FCHPT STU

	LS	Fyzikálna chémia II.	LC	FCHPT STU
1999/2000	ZS			$
	LS			$
2000/2001	ZS	Fyzikálna chémia I.	LC	FCHPT STU
	LS	Fyzikálna chémia II.		FCHPT STU
2001/2002	ZS			&
	LS			&
2002/2003	ZS			&
	LS	Fyzikálna chémia II.	LC	FCHPT STU
2003/2004	ZS	Koloidná chémia	P, C	FPT TnUAD
	LS			
2004/2005	ZS	Koloidná chémia	P, C	FPT TnUAD
	LS			
2005/2006	ZS	Chemické inžinierstvo I.	C	FPT TnUAD
	LS	Chemické inžinierstvo II.	C	FPT TnUAD
	LS	Fyzikálna chémia	P, C	MtF STU
2006/2007	ZS	Chemické inžinierstvo I.	C	FPT TnUAD
	LS	Chemické inžinierstvo II.	C	FPT TnUAD
	LS	Fyzikálna chémia	P, C	MtF STU
2008/2009	ZS	Technická chémia	C	FŠT TnUAD
	LS			
2009/2010	ZS			
	LS	Anorganická technológia a materiály	P	TnUAD
2010/2011	LS	Anorganická technológia a materiály	P	TnUAD
2013/2014	LS	Molekulová spektroskopia	P	TnUAD
2014/2015	LS	Molekulová spektroskopia	P	TnUAD
	LS	Koloidná chémia II. st. VŠ	P	TnUAD
2015/2016	LS	Molekulová spektroskopia	P	TnUAD
doteraz	LS	Koloidná chémia III. st. VŠ	P	TnUAD

P – prednáška; **C** – cvičenie; **LC** – laboratórne cvičenie.
FCHPT STU – Fakulta chemických a potravinárskych technológií STU Bratislava
FPT TnUAD – Fakulta priemyselných technológií TnUAD Púchov
MtF STU – Materiálovo-technologická fakulta STU Trnava
FŠT TnUAD – Fakulta špeckálnej techniky TnUAD Trenčín
TnUAD Trenčianska univerzita Alexandra Dubčeka v Trenčíne

$ – základná vojenská služba
& – študijný pobyt Francúzsko

Vedenie bakalárskych prác:

1. xxxxxx (ChTF STU Bratislava, **1997**): Komplexné zlúčeniny Co(II) ako modelové systémy pre proteíny transferujúce a uskladňujúce dikyslík (O_2) – hemoglobín, myoglobín. Školiteľ: Robert Klement

2. xxxxxx (FPT TnUAD Púchov, **2016**): Príprava a luminiscenčné vlastnosti Ce^{3+} dopovaného Y_2SiO_5 – 54 s. Školiteľ: Robert Klement

Vedenie diplomových prác:

1. xxxxxx (FPT TnUAD Púchov, **2006**): Využitie impedančnej spektroskopie pri štúdiu skiel a keramických materiálov – 64 s. Školiteľ: Robert Klement
   Ocenenie: 2. miesto – cena Slovenskej Sklárskej Spoločnosti.

2. xxxxxx (FPT TnUAD Púchov, **2007**): Fyzikálne vlastnosti a stabilita peny boritanokremičitanových tavenín – 78 s. Školiteľ: Robert Klement

3. xxxxxx (FPT TnUAD Púchov, **2009**): Štúdium vlastností boritano-hlinitano-kremičitanových skiel, so zložením blízkym E-sklu, dopovaných Fe_2O_3 – 86 s. Školiteľ: Robert Klement

4. xxxxxx (FPT TnUAD Púchov, **2011**): Štúdium redoxných rovnováh polyvalentných prvkov v priemyselne vyrábaných kremičitanových sklách a sklotvorných taveninách – 64 s. Školiteľ: Robert Klement

5. xxxxxx (FPT TnUAD Púchov, **2012**): Príprava a štúdium vlastností hlinitanových skiel v sústave RE_2O_3-Al_2O_3, dopovaných vybranými luminiscenčne aktívnymi iónmi prvkov vzácnych zemín – 75 s. Školiteľ: Robert Klement

6. xxxxxx (VILA TnUAD Trenčín, **2017**): Príprava a štúdium spektrálnych vlastností Eu^{3+} a Eu^{2+} dopovanej sústavy Y_2O_3-Al_2O_3 – 85 s. Školiteľ: Robert Klement

Vedenie doktorandských prác:

1. xxxxxx (VILA TnUAD Trenčín, **2013**): Štruktúra a spektrálne vlastnosti sklokeramických materiálov na báze binárnych a ternárnych aluminátov prvkov vzácnych zemín – 135 s. Školiteľ: Robert Klement. Obhájené: 08/2013.

2. xxxxxx (VILA TnUAD Trenčín, **2015**): Korózia prírodných a syntetických biomateriálov v kyslých médiách a jej vplyv na mechanické vlastnosti – 125 s. Školiteľ: Robert Klement. Obhájené: 08/2015.

3. xxxxxx (VILA TnUAD Trenčín, **2016**): Nové sklené a sklokeramické luminiscenčné materiály na báze hlinitanov vzácnych zemín pre aplikácie v LED diódach vyžarujúcich biele svetlo – 153 s. Školiteľ: Robert Klement. Obhájené: 08/2016.

Vedenie študentských projektov (ŠVOČ):

1. xxxxxx (študentský projekt ŠVOČ – 1995, ChTF STU Bratislava): ESR štúdium komplexov Co(II) s derivátmi ligandov typu Salen.
   Ocenenie: **1. miesto** v sekcii Fyzikálna a Analytická Chémia fakultného kola ŠVOČ (ChTF STU Bratislava).

2. xxxxxx (študentský projekt ŠVOČ – 1996, ChTF STU Bratislava): Teplom indukovaná zmena štruktúry v$(NH_4)[Zn(NH_3)_2(CrO_4)_2]$ študovaná metódou ESR spektroskopie.
   Ocenenie: **3. miesto** v sekcii Fyzikálna a Analytická Chémia fakultného kola ŠVOČ (ChTF STU Bratislava).

3. xxxxxx (študentský projekt ŠVOČ – 1996, ChTF STU Bratislava): ESR štúdium komplexných zlúčenín Co(II) s derivátmi ligandov typu Salen a Tetrahydrosalen (vplyv donorovej sily axiálne koordinovanej bázy na tvorbu dikyslíkových aduktov).
   Ocenenie: **1. miesto** v sekcii Fyzikálna a Analytická Chémia fakultného kola ŠVOČ (ChTF STU Bratislava).

III. HABILITAČNÁ PRÁCA

Žiadateľ o habilitačné konanie predkladá habilitačnú prácu vo forme súboru publikovaných vedeckých prác doplnených komentárom.

Názov habilitačnej práce: „Fotoluminiscenčné vlastnosti aktivátormi dopovaných sklených a polykryštalických systémov pre aplikácie v pevnolátkových svetelných zdrojoch“.

IV. VEDECKÝ VÝSKUM A PUBLIKAČNÁ AKTIVITA

Minimálne povinné požiadavky	Požiadavky na začatie		Skutočnosť
	habilitačného konania	inauguračného konania	
HODNOTENIE PEDAGOGICKEJ ČINNOSTI			
I. Pedagogická aktivita			
Kontinuálna vzdelávacia činnosť	**3 roky po PhD.**	**3 roky po habilitácii**	
Autorstvo (spoluautorstvo) vysokoškolskej učebnice alebo skrípt (učebných textov):			
• Vysokoškolské učebnice (ACA, ACB, ACC, ACD) alebo		1	**1**
• Skriptá, učebné texty, elektronické texty (BCI, BCK)	1	2	
HODNOTENIE VEDECKEJ A VÝSKUMNEJ ČINNOSTI			
II. Vedecko-výskumná aktivita			
Pôvodné vedecké práce v zahraničných a domácich recenzovaných časopisoch a zborníkoch (ADC, ADD, ADM, ADN, ADE, ADF, AEC, AED, AFA, AFB, AFC, AFD) a patenty, autorské osvedčenia a objavy (AGJ) spolu[1], z toho:	15	50	**76**
• Vedecké práce v karentovaných časopisoch v databáze WOS (ADC, ADD)[1]	12	30	**34**
• Patenty, autorské osvedčenia a objavy[1, 4]			**0**
Vedecké práce alebo výstupy kategórie A podľa Akreditačnej komisie SR spolu, z toho:	6	15	**18**
Vedecké práce alebo výstupy kategórie A podľa Akreditačnej komisie SR spolu 2, z toho:		20	
Vedecké práce v časopisoch (databáza WOS, IF ≥ 0,9 IFM)[3]			**25**
Vedecké monografie kategórie AAA (kategorizácia MŠVVaŠ SR)[1, 4]			
• Kapitoly alebo štúdie kategórie ABA alebo ABC vo vedeckých monografiách vydaných vo svetovom jazyku[1, 4]			**2**
• Preukázateľne realizované patenty[1, 4]			
III. Ohlasy na publikačnú činnosť			
Citácie (SCI, SCOPUS, knižné a iné) spolu1, z toho:	25	80	**412**
• Citácie registrované vo WOS a SCOPUS	25	70	**412**
• Ostatné neregistrované citácie			
IV. Vedecká škola			
• CSc. alebo PhD., Dr., DrSc.	**PhD.**	**PhD.**	
• Ukončenie výchovy doktorandov		2	**3**
• Vedúci grantového projektu		1	**4**
• Spoluriešiteľ grantového projektu	3	6	**15**

Vysvetlivky:

1. Počet vedeckých prác je bez prepočítania na počet autorov. Rovnako sa neprepočítavajú na počet autorov citácie, patenty a monografie/kapitoly v monografii.
2. V prípade najmenej 20 výstupov kategórie A nie je potrebné splniť podmienku počtu 30 vedeckých prác v karentovaných časopisoch v databáze WOS.
3. 0,9 IFM je pre chemické vedy a pre biotechnológie 1,00.
4. Zohľadnenie výstupov vo forme monografií/kapitol v monografiách a patentoch:
    - Monografia/kapitola vo vedeckej monografii môže nahradiť najviac tri/jednu vedeckú prácu, podľa rozsahu a vydavateľstva.
    - Každý prijatý európsky alebo svetový patent je ekvivalentný 10% odporúčaného počtu vedeckých prác v časopisoch s rovnakým alebo vyšším IF ako je požadované.
    - Každý preukázateľne realizovaný patent je ekvivalentný 20% odporúčaného počtu vedeckých prác v časopisoch s rovnakým alebo vyšším IF ako je požadované.

A. PUBLIKAČNÁ AKTIVITA

Diplomová a dizertačná práca

R. Klement: *ESR spektroskopia komplexov Cu(II) a Co(II) s ligandami typu Schiffových báz* [Diplomová práca].
Bratislava: CHTF STU, **1993**, 68 s. (školiteľ: Prof. Ing. Marián Valko, DrSc.)

R. Klement: *Štúdium štvorcovo-planárnych komplexných zlúčenín Cu(II) a Co(II) s derivátmi ligandov typu Schiffových báz Salen a Tetrahydrosalen* [Dizertačná práca].
Bratislava: CHTF STU, **2001**, 144 s. (školiteľ: Prof. Ing. Peter Pelikán, DrSc.)

Kapitoly vo vedeckých monografiách vydané v zahraničných vydavateľstvách (ABC – 2)

1. D. Galusek, J. Sedláček, **R. Klement**, P. Švančárek: *Silicon carbide- containing alumina nanocomposites: processing and properties*, Chapter 4, s. 43 – 78 In: Advances in ceramic matrix composites: Book Series: Woodhead Publishing Series in Composites Science and Engineering, Ed. by I.M. Low, Woodhead Publishing Limited, Cambridge, **2014**. ISBN 978-0-85709-120-128.

2. **R. Klement**, P. Švančárek, M. Parchovianský, J. Sedláček, D. Galusek: *Al_2O_3-SiC nanocomposites: preparation, microstructure, and properties*, Chapter 4, s. 49 – 92, In: Advances in ceramic matrix composites: Book Series: Woodhead Publishing Series in Composites Science and Engineering, 2nd edition, Ed. by I.M. Low, Woodhead Publishing Limited, Cambridge, **2018**. ISBN 978-0-08-102166-8.

Kapitoly vo vedeckých monografiách vydané v domácich vydavateľstvách (ABD – 1)

1. **R. Klement**: *Fullerény a uhlíkové nanorúrky – Nanomateriál budúcnosti* (Fullerenes and Carbon Nanotubes – A Nanomaterial of the Future), s. 392 – 408 In: M. Balog, M. Tatarko a kol.: Odhalené tajomstvá chémie (The secrets of chemistry revealed), VEDA, Vydavateľstvo SAV, Bratislava, **2007**. ISBN 978-80-224-0957-5.

Kapitoly vo vysokoškolských učebniciach vydané v domácich vydavateľstvách (ACD – 1)

1. Peter Šimon a kolektív (**R. Klement**), Laboratórne Cvičenia z Fyzikálnej Chémie Edícia vysokoškolských učebníc, Slovenská Technická Univerzita v Bratislave, Vydavateľstvo STU Press, Bratislava 1998, 170 s. (13 AH, príspevok R. Klement, **1.5 AH**). ISBN 80-227-1113-6.

Editované zborníky
(FAI – 2)

1. M. Liška, D. Galusek, **R. Klement**, V. Petrušková (editors), **Glass – The Challenge for the 21st Century**, Proceedings of the 9th Conference of the European Society of Glass Science and Technology with the Annual Meeting of the International Commission on Glass, Trenčín, Slovakia, 22-26 June, Trans Tech Publications, Zurich, Switzerland, **2008**, 692 s. ISBN 0-87849-387-5, ISBN-13 978-0-87849-387-6.

2. M. Liška, **R. Klement** (editors), Zborník príspevkov, Slovenská a česká konferencia o skle Trenčianske Teplice, Slovakia, 30. November – 2. December, špeciálne číslo časopisu Sklář a Keramik, ročník 61 (2011), Vydavateľstvo Českej sklárskej spoločnosti, Jablonec nad Nisou, Česká republika **2011**, 232 s. ISBN 978-80-260-1068-5.

Vedecké práce v zahraničných karentovaných časopisoch
(ADC – 34)

1. M. Valko, **R. Klement**, P. Pelikán, R. Boča, Ľ. Dlháň, A. Böttcher, H. Elias, L. Müller:
   Copper(II) and Cobalt(II) complexes with derivatives of Salen and Tetrahydrosalen: An electron spin resonance, magnetic susceptibility, and quantum chemical study.
   J. Phys. Chem. **1995**, *99* (1), 137–143. (IF: 4.173)

2. M. Mazúr, M. Valko, **R. Klement**, H. Morris:
   Quantitative electron paramagnetic resonance (EPR) spectrometry with a TE104 double rectangular cavity, Part 1. A simple alignment procedure for the precision positioning of the sample
   Anal. Chim. Acta **1996**, *333* (3), 249–252. (IF: 4.950)

3. M. Mazúr, M. Valko, H. Morris, **R. Klement**:
   Quantitative electron paramagnetic resonance (EPR) spectrometry with a TE104 double rectangular cavity, Part 2. An analysis of sample and TE104 cavity error sources associated with the movement of line-like samples into the TE104 cavity
   Anal. Chim. Acta **1996**, *333* (3), 253–265. (IF: 4.950)

4. W. Linert, F. Renz, R. Boča, M. Valko, **R. Klement**, M. Mazúr:
   Magnetic properties and electronic structure of five- and six-coordinate manganese(II)2,6-bis(benzimidazol-2-yl) pyridine complexes
   J. Coord. Chem. **1996,** *40* (4)**,** 293–309. (IF: 1.795)

5. M. Valko, R. Boča, **R. Klement**, J. Kožíšek, M. Mazúr, P. Pelikán, H. Morris, H. Elias, L. Müller:
   Effect of hydrogenation on electronic and distant magnetic properties in Copper(II) complexes with derivatives of Tetrahydrosalen and Salen. X–ray crystal structure of [Cu{Bu,Me (saltmen)}] complex
   Polyhedron **1997**, *16* (6), 903–908. (IF: 1.926)

6. R. Boča, H. Elias, W. Haase, M. Hüber, **R. Klement**, L. Müller, H. Paulus, I. Svoboda, M. Valko:
Spectroscopic and magnetic properties and structure of a five–coordinate, O_2–binding Cobalt(II) Schiff Base complex and of the Copper(II) analogue
Inorg. Chim. Acta **1998**, *278* (2), 127–135. (IF: 2.002)

7. **R. Klement**, F. Stock, H. Elias, H. Paulus, P. Pelikán, M. Valko, M. Mazúr:
Copper(II) complexes with derivatives of Salen and Tetrahydrosalen: A spectroscopic, electrochemical and structural study
Polyhedron **1999**, *18* (27), 3617–3628. (IF: 1.926)

8. M. Dunaj-Jurčo, I. Potočňák, D. Mikloš, **R. Klement**:
Complexes with new chelate anionic ligands formed by nucleophilic addition in Copper(II) coordination sphere III. The crystal structure of (2,2´-bipyridine-N,N´)(cyanato-N)-[methyl(2-cyano-2-imidoxy ethaneimidate-N,N´)] Copper(II) and (2,2´-bipyridine-N,N´)(2-cyano-2-imidoxy ethaneimidate-N,N´)Copper(II)
Collect. Czech. Chem. Commun. **1999**, *64* (4), 600–612. (IF: 1.137)

9. M. Valko, M. Mazúr, H. Morris, **R. Klement**, C.J. Williams, M. Melník:
Effect of coordinated base on magnetic behaviour of Copper(II) carboxylates with fatty acid chains (An ESR study)
J. Coord. Chem. **2000**, *52* (2), 129–138. (IF: 1.795)

10. P. Baran, R. Boča, M. Breza, H. Elias, H. Fuess, V. Jorík, **R. Klement**, I. Svoboda:
The spectroscopic and structural properties of Copper(II) complexes of the novel tridentate (ONO) pyridine N-oxide Hpoxap
Polyhedron **2002**, *21* (16), 1561–1571. (IF: 1.926)

11. J. Cambedouzou, V. Pichot, S. Rols, P. Launois, P. Petit, **R. Klement**, H. Kataura, R. Almairac:
On the diffraction pattern of C_{60} peapods
Eur. Phys. J. B **2004**, *42* (1), 31–45. (IF: 1.436)

12. M. Liška, J. Macháček, O. Gedeon, **R. Klement**:
Molecular dynamics of the Na_2O-MgO-CaO-SiO_2 glasses
Glastech. Ber. Glass Sci. Technol. **2004**, *77C*, 267–272. (IF: 0.365)

13. M. Liška, **R. Klement**, J. Macháček, O. Gedeon:
Inverse thermodynamic modelling of glass from Raman spectroscopical and molecular dynamics results
Phys. Chem. Glasses **2005**, *46* (2), 108–111. (IF: 0.599)

14. A. Huber, L. Müller, H. Elias, **R. Klement**, M. Valko:
Cobalt(II) complexes with substituted Salen-type ligands and their dioxygen affinity in N,N-Dimethylformamide at various temperatures
Eur. J. Inorg. Chem. **2005**, (8), 1459–1467. (IF: 2.444)

15. P. Kluvánek, **R. Klement**, M. Karáčoň:
Investigation of the conductivity of the lithium borosilicate glass system
J. Non-Cryst. Solids. **2007***, 353* (18-21)*,* 2004–2007. (IF: 2.124)

16. J. Kraxner, **R. Klement**, M. Liška:
High-temperature viscosity and density of alumino-borosilicate glasses as a model system for commercial E-Glass
Ceram.-Silik. **2008***, 52* (3)*,* 148–154. (IF: 0.439)

17. J. Kraxner, M. Liška, **R. Klement**, M. Chromčíková:
Surface tension of borosilicate melts with the composition close to the E-glass
Ceram.-Silik. **2009**, *53* (2), 141–143. (IF: 0.439)

18. **R. Klement**, J. Kraxner, M. Liška:
Spectroscopic analysis of iron doped glasses with composition close to the E-glass: A preliminary study
Ceram.-Silik. **2009**, *53* (3), 180–183. (IF: 0.439)

19. D. Galusek, **R. Klement**, J. Sedláček, M. Balog, C. Fasel, J. Zhang, M.A. Crimp, R. Riedel:
Al_2O_3–SiC composites prepared by infiltration of pre-sintered alumina with a poly(allyl)carbosilane
J. Eur. Ceram. Soc. **2011**, *31* (1-2), 111–119. (IF: 3.454)

20. A. Prnová, A. Domanická, **R. Klement**, J. Kraxner, M. Polovka, M. Pentrák, D. Galusek, P. Šimurka, J. Kozánková:
Er- and Nd-doped yttrium aluminosilicate glasses: Preparation and characterization
Opt. Materials **2011**, *33* (12), 1872–1878. (IF: 2.238)

21. A. Haliaková, A. Prnová, **R. Klement**, D. Galusek, W.-H. Tuan:
Flame-spraying synthesis of aluminate glasses in the Al_2O_3-La_2O_3 system
Ceram. Int. **2012**, *38* (7), 5543–5549. (IF: 2.986)

22. A. Domanická, **R. Klement**, A. Prnová, K. Bodišová, D. Galusek:
Luminescent rare-earth ions doped Al_2O_3-Y_2O_3-SiO_2 glass microspheres prepared by flame synthesis
Ceram. Int. **2014**, *40* (4), 6005–6012. (IF: 2.986)

23. A. Prnová, K. Bodišová, **R. Klement**, M. Migát, P. Veteška, M. Škrátek, E. Bruneel, I. Van Driessche, D. Galusek:
Preparation and characterization of Yb_2O_3 - Al_2O_3 glasses by the Pechini sol-gel method combined with flame synthesis
Ceram. Int. **2014**, *40* (4), 6179–6184. (IF: 2.986)

24. E. Bernardo, L. Fiocco, A. Prnová, **R. Klement**, D. Galusek:
Gehlenite:Eu^{3+} phosphors from a silicone resin and nano-sized fillers
Opt. Materials **2014***, 36* (7), 1243–1249. (IF: 2.238)

25. **R. Klement**, B. Hruška, V. Hronský, D. Olčák:
Preparation and characterization of basic and Er^{3+} doped glasses in the system Y_2O_3–Al_2O_3–ZrO_2
Acta Phys. Pol. A **2014***, 126* (1), 302–303*.* (IF: 0.469)

26. K. Haladejová, A. Prnová, **R. Klement**, W.-H. Tuan, S.-J. Shih, D. Galusek:
Aluminate glass based phosphors for LED applications
J. Eur. Ceram. Soc. **2016**, *36* (12), 2969–2973. (IF: 3.454)

27. K. Bodišová, **R. Klement**, D. Galusek, V. Pouchlý, D. Drdlík, K. Maca:
Luminescent rare-earth-doped transparent alumina ceramics
J. Eur. Ceram. Soc. **2016**, *36* (12), 2975–2980. (IF: 3.454)

28. P. Švančárek, **R. Klement**, D. Galusek:
Photoluminescence of $(ZnO)_{X-Z}(SiO_2)_Y$:$(MnO)_Z$ green phosphors prepared by direct thermal synthesis: The effect of ZnO/SiO_2 ratio and Mn^{2+} concentration on luminescence
Ceram. Int. **2016**, *42* (15), 16852–16860. (IF: 2.986)

29. A. Prnová, **R. Klement**, K. Bodišová, J. Valúchová, D. Galusek, E. Bruneel, I. Van Driessche:
Thermal behaviour of yttrium-aluminate glasses studied by DSC, High temperature X-ray diffraction, SEM and SEM-EDS
J. Therm. Anal. Calorim. **2017**, *128* (3), 1407–1415. (IF: 1.953)

30. K. Drdlíková, **R. Klement**, D. Drdlík, T. Spousta, D. Galusek, K. Maca:
Luminescent Er^{3+} doped transparent alumina ceramics
J. Eur. Ceram. Soc. **2017**, *37* (7), 2695–2703. (IF: 3.454)

31. K. Drdlíková, **R. Klement**, H. Hadraba, D. Drdlík, T. Spousta, D. Galusek, K. Maca:
Luminescent Eu^{3+} doped transparent alumina ceramics
J. Eur. Ceram. Soc. **2017**, *37* (14), 4271–4277. (IF: 3.454)

32. A. Prnová, A.Plško, J. Valúchová, K. Haladejová, **R. Klement**, D. Galusek:
Crystallization kinetics of glass microspheres with yttrium aluminium garnet (YAG) composition
J. Therm. Anal. Calorim. **2018**, *131* (2), 1115–1123. (IF: 1.953)

33. A. Prnová, A.Plško, J. Valúchová, P. Švančárek, **R. Klement**, M.Michálková, D. Galusek:
Crystallization kinetics of yttrium aluminate glasses
J. Therm. Anal. Calorim. **2018**, DOI: 10.1007/s10973-017-6948-2. (IF: 1.953)

34. A. Prnová, A.Plško, **R. Klement**, J. Valúchová, K. Haladejová, P. Švančárek, M. Majerová, D. Galusek:
Crystallization kinetics of binary La_2O_3-Al_2O_3 glass
J. Non-Cryst. Solids. **2018**, DOI: 10.1016/j.jnoncrysol.2018.03.001. (IF: 2.124)

Vedecké práce v zahraničných nekarentovaných časopisoch (ADE – 5)

1. A. Domanická, A. Prnová, K. Ghillányová, **R. Klement**, D. Galusek:
   Fabrication and properties of yttrium aluminosilicate glasses doped with Nd and Er
   Sklář a Keramik **2011**, *61*, 194-198. ISBN 978-80-260-1068-5.

2. B. Hruška, K. Ghillányová, **R. Klement**, A. Prnová, D. Galusek:
   Preparation and properties of glasses in the system Al_2O_3-Y_2O_3-ZrO_2
   Sklář a Keramik **2011**, *61*, 203-207. ISBN 978-80-260-1068-5.

3. A. Prnová, **R. Klement**, M. Migát, D. Galusek, K. Ghillányová, M. Polovka:
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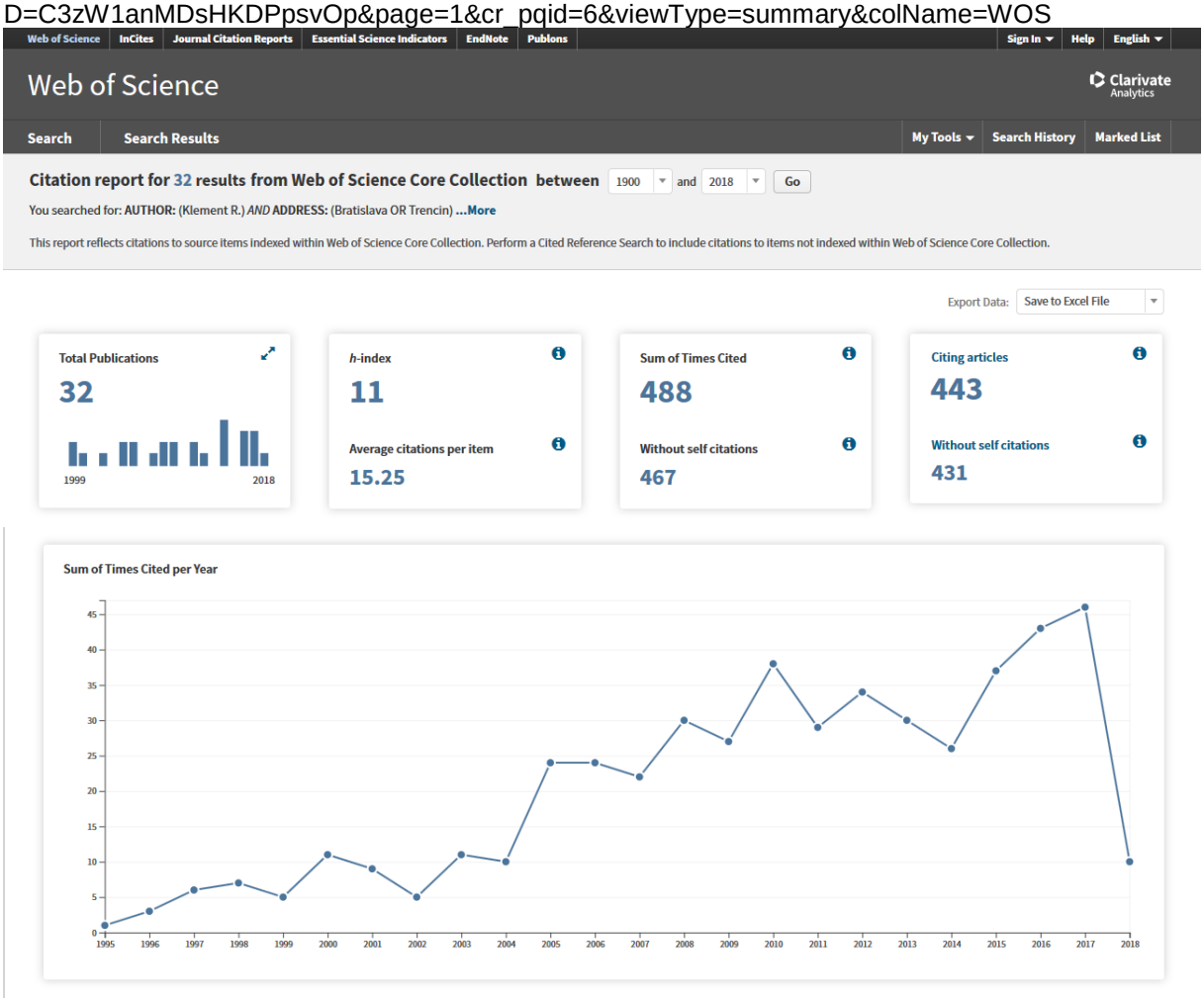

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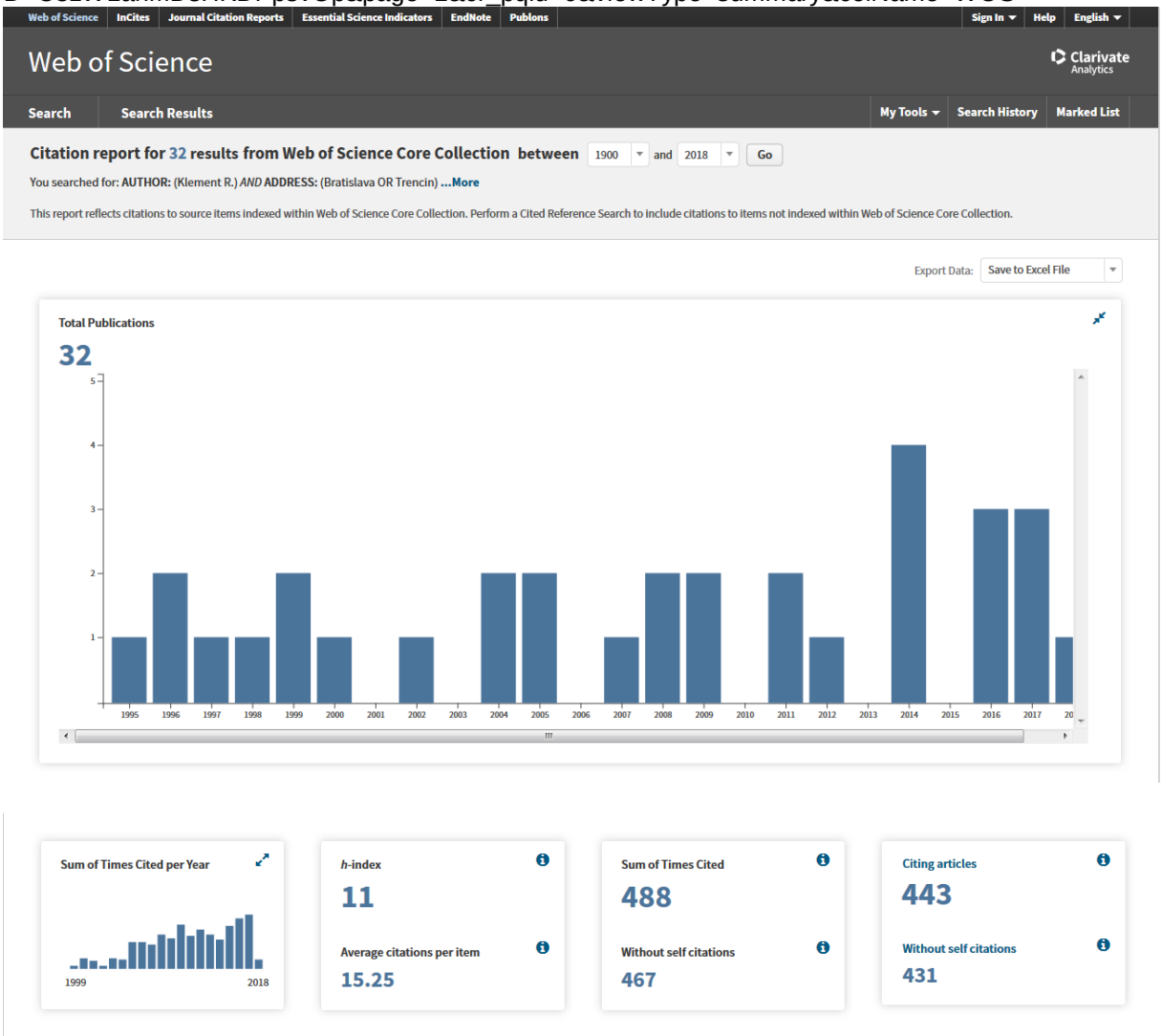

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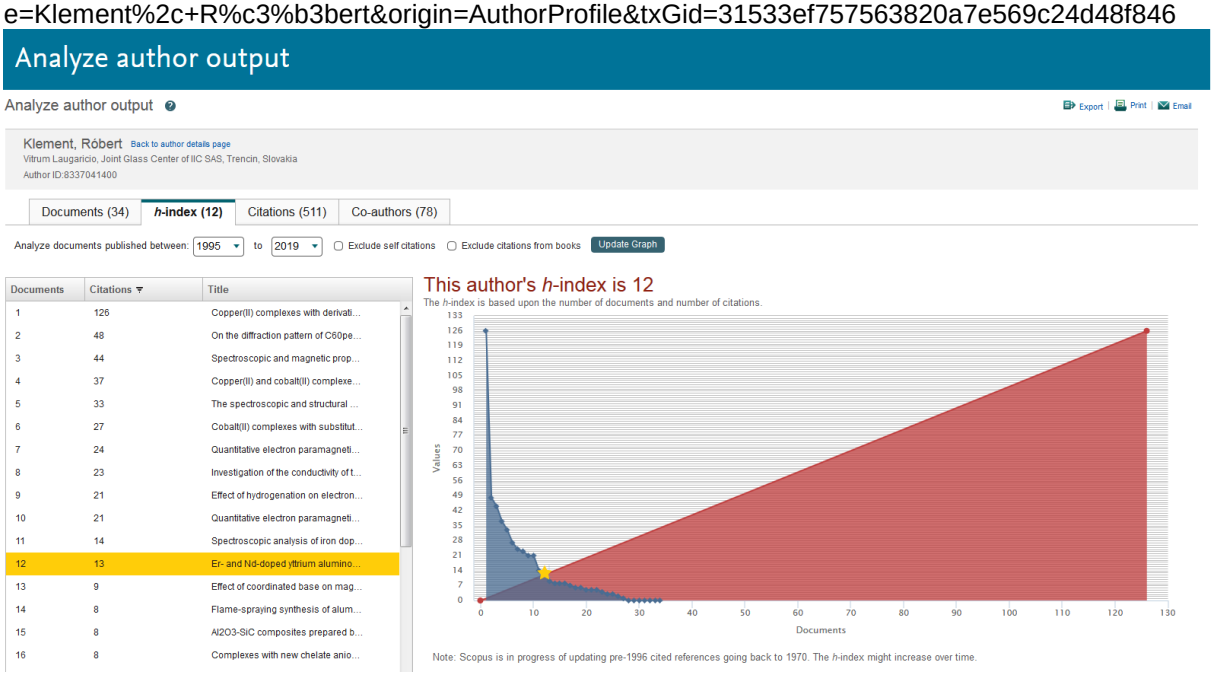

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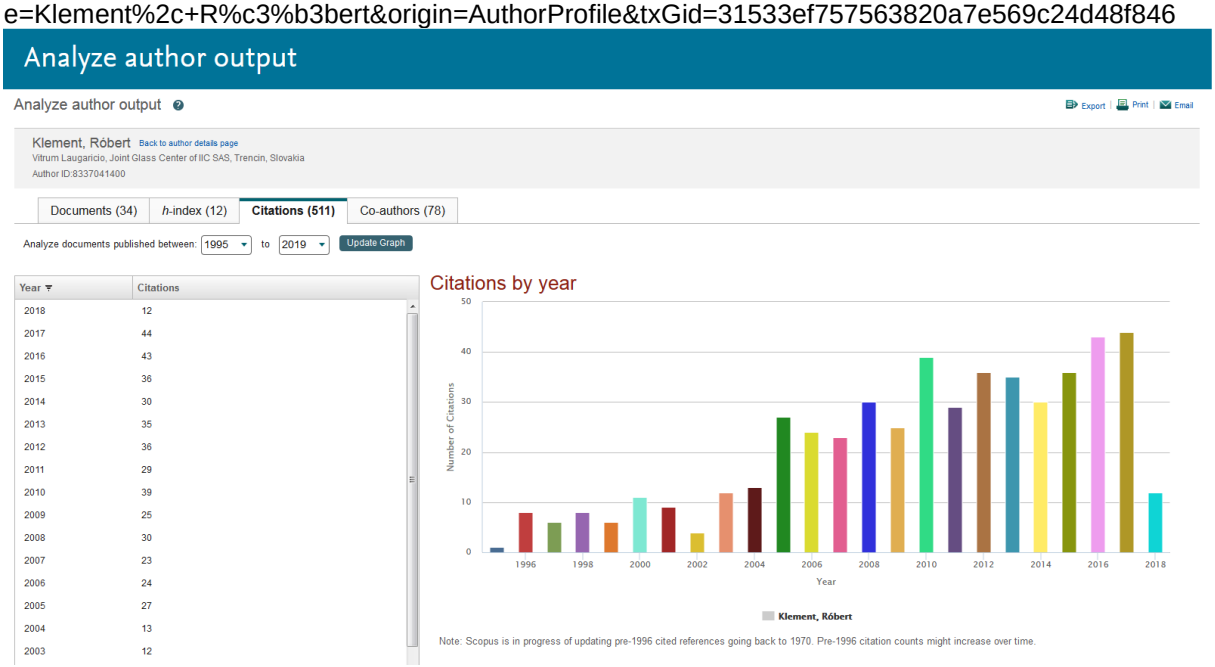

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Miesto	Dátum	Meno, priezvisko, titul (podpis)
V Trenčíne	15.5.2018	Ing. Robert Klement, PhD.

C. RIEŠENIE PROJEKTOV

Žiadateľ o habilitačné konanie bol **zodpovedným riešiteľom 3 vedecko-výskumných projektov** (2 x VEGA, 1 x CUGA), je/bol **spoluriešiteľom 13 vedecko-výskumných projektov** (4 x APVV, 6 x VEGA, 2 x projekty ŠF, 1 x zahraničný projekt), 2 pedagodicky zameraných projektov (2 x projekty ŠF). V súčasnosti je zodpovedným riešiteľom 1 VEGA projektu a 1 podaného APVV projektu, a členom riešiteľského kolektívu 1 podaného APVV projektu.

1. **APVV-20-P06405**
   Optimalizácia tavenia skloviny EUTAL.
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2005-2007

2. **CUGA 19/2007**
   Spektroskopické štúdium skiel v sústavách MgO-CaO-Al_2O_3-B_2O_3-SiO_2 a Al_2O_3-CaO dopovaných iónmi prechodných prvkov a iónmi prvkov vzácnych zemín.
   Zodpovedný riešiteľ: **Ing. Robert Klement, PhD.**
   Doba riešenia projektu: 2007-2008

3. **VEGA 1/3578/06**
   Štruktúra a vlastnosti kremičitanových skiel – termodynamické modely a molekulovodynamické simulácie verzus experiment.
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2006-2008

4. **VEGA 2/6181/26**
   Transparentné materiály na báze Al_2O_3 s výnimočnými mechanickými vlastnosťami.
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2006-2008

5. **APVV 0171-06**
   Výskum keramických materiálov pre vysoko korozívne prostredia.
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2006-2009

6. **VEGA 1/0330/09**
   Štruktúra a vlastnosti oxidových skiel - termodynamické modely, vibračná spektroskopia a molekulová dynamika.
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2009-2011

7. **VEGA 1/0603/09**
   Sklené a sklokeramické materiály na báze aluminátov vzácnych zemín s výnimočnými mechanickými a optickými vlastnosťami.
   Zodpovedný riešiteľ: **Ing. R. Klement, PhD.**
   Doba riešenia projektu: 2009-2011

8. **CEKSIM – ITMS 262 201 200 56 OP Výskum a vývoj Európskeho fondu regionálneho rozvoja: Centrum excelentnosti pre keramiku, sklo a silikátové materiály.**
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2010-2013

9. **PVTECHSKLO – ITMS 262 202 200 72 OP Výskum a vývoj Európskeho fondu regionálneho rozvoja: Priemyselný výskum pre potreby zefektívnenia unikátnej technológie tavenia a tvarovania úžitkového skla.**
   Zodpovedný riešiteľ: xxxxxx
   člen riešiteľského kolektívu
   Doba riešenia projektu: 2010-2015

10. **26110230009 Operačný program Vzdelávanie: Digitalizácia TnUAD: Rozvoj inovatívnych foriem vzdelávania a skvalitnenie študijných programov.**
    Zodpovedný riešiteľ: TnUAD
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2011-2013

11. **VEGA 2/0165/12**
    Štúdium mechanizmu korózie materiálov používaných pri tavení priemyselne vyrábaných skiel.
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2012-2015

12. **APVV 0218-11**
    Mechanizmy korózie a mikromechanické vlastnosti dentálnych materiálov
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2012-2015

13. **KVŠ – ITMS 261 102 300 99**
    Trenčianska univerzita Alexandra Dubčeka v Trenčíne chce ponúkať kvalitné a moderné vzdelávanie.
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2013-2015

14. **VEGA 1/0631/14**
    Nové sklené a sklokeramické luminiscenčné materiály na báze hlinitanov vzácnych zemín pre aplikácie v LED diódach vyžarujúcich biele svetlo
    Zodpovedný riešiteľ: **Ing. R. Klement, PhD.**

Doba riešenia projektu: 2014-2017

12. **VEGA 2/0058/14**
    Keramické vrstvy pripravené z organokremičitých prekurzorov pre vysokoteplotnú protikoróznu ochranu kovov
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2014-2016

13. **SAS-NSC JRP 2012/14**
    Nové anorganické fosfory bez obsahu prvkov vzácnych zemín pre energeticky úsporné osvetľovacie zdroje.
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2013-2015

14. **APVV 0014-15**
    Kompozitné vrstvy pre vysokoteplotnú protikoróznu ochranu kovov
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2016-2020

15. **VEGA 2/0026/17**
    Transparentné polykryštalické keramické materiály so submikrónovou mikroštruktúrou a luminiscenčnými vlastnosťami
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2017-2020

16. **VEGA 1/0527/18**
    Nové anorganické fosfory na báze stechiometrických hlinitanov a kremičitanov s dlhodobou svetelnou emisiou pre optické a biomedicínske aplikácie
    Zodpovedný riešiteľ: **Ing. R. Klement, PhD.**
    Doba riešenia projektu: 2018-2021

17. **APVV 17-0049 – podaný**
    Nové sklené a sklokeramické fosfory na báze hlinitanov vzácnych zemín pre aplikácie v pevnolátkových energiu šetriacich svetelných zdrojoch vyžarujúcich biele svetlo (pc-WLED diódy)
    Zodpovedný riešiteľ: **Ing. R. Klement, PhD.**
    Doba riešenia projektu: 2018-2022

18. **APVV 17-0397 – podaný**
    Anorganicko-organické nanokompozitné vrstvy ako ochrana materiálov pred osídľovaním mikroorganizmami
    Zodpovedný riešiteľ: xxxxxx
    člen riešiteľského kolektívu
    Doba riešenia projektu: 2018-2021

Miesto	Dátum	Meno, priezvisko, titul (podpis)
V Trenčíne	15.5.2018	Ing. Robert Klement, PhD.

V. VEDECKÁ VÝCHOVA

Žiadateľ o habilitačné konanie viedol od roku 2008 celkovo 5 doktorandov (študijný odbor: Anorganické technológie a nekovové materiály; študijný program: 5.2.19 Anorganické technológie a nekovové materiály), z toho 3 úspešne ukončili doktorandské štúdium obhajobou dizertačnej práce, 1 doktorandka štúdium zanechala po obhájení dizertačnej skúšky a 1 doktorandka zanechala štúdium zo zdravotných dôvodov po prvom roku štúdia. Ďalej viedol 6 diplomantov a 2 bakalárov.

Vedecká výchova doktorandov:

1. xxxxxx (2009-2013)
2. xxxxxx (2011-2015)
3. xxxxxx (2012-2016)
4. xxxxxx (2013-2015)
5. xxxxxx (2014-2015)

Úspešne obhájené doktorandské práce:

1. xxxxxx (VILA TnUAD Trenčín, 2013): Štruktúra a spektrálne vlastnosti sklokeramických materiálov na báze binárnych a ternárnych aluminátov prvkov vzácnych zemín – 135 s. Školiteľ: Robert Klement. Obhájené: 08/2013.

2. xxxxxx (VILA TnUAD Trenčín, 2015): Korózia prírodných a syntetických biomateriálov v kyslých médiách a jej vplyv na mechanické vlastnosti – 125 s. Školiteľ: Robert Klement. Obhájené: 08/2015.

3. xxxxxx (VILA TnUAD Trenčín, 2016): Nové sklené a sklokeramické luminiscenčné materiály na báze hlinitanov vzácnych zemín pre aplikácie v LED diódach vyžarujúcich biele svetlo – 153 s. Školiteľ: Robert Klement. Obhájené: 08/2016.

Úspešne obhájené diplomové práce:

1. xxxxxx (FPT TnUAD Púchov, **2006**): Využitie impedančnej spektroskopie pri štúdiu skiel a keramických materiálov – 64 s. Školiteľ: Robert Klement
   Ocenenie: 2. miesto – cena Slovenskej Sklárskej Spoločnosti.

2. xxxxxx (FPT TnUAD Púchov, **2007**): Fyzikálne vlastnosti a stabilita peny boritanokremičitanových tavenín – 78 s. Školiteľ: Robert Klement

3. xxxxxx (FPT TnUAD Púchov, **2009**): Štúdium vlastností boritano-hlinitano-kremičitanových skiel, so zložením blízkym E-sklu, dopovaných Fe_2O_3 – 86 s. Školiteľ: Robert Klement

4. xxxxxx (FPT TnUAD Púchov, **2011**): Štúdium redoxných rovnováh polyvalentných prvkov v priemyselne vyrábaných kremičitanových sklách a sklotvorných taveninách – 64 s. Školiteľ: Robert Klement

5. xxxxxx (FPT TnUAD Púchov, **2012**): Príprava a štúdium vlastností hlinitanových skiel v sústave RE_2O_3-Al_2O_3, dopovaných vybranými luminiscenčne aktívnymi iónmi prvkov vzácnych zemín – 75 s. Školiteľ: Robert Klement

6. xxxxxx (VILA TnUAD Trenčín, **2017**): Príprava a štúdium spektrálnych vlastností Eu^{3+} a Eu^{2+} dopovanej sústavy Y_2O_3-Al_2O_3 – 85 s. Školiteľ: Robert Klement

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VI. OSTATNÁ ODBORNÁ ČINNOSŤ

Členstvo v národných profesijných organizáciách:

- Slovenská sklárska spoločnosť (člen 2004-2014); člen predstavenstva (2004-2011)
- Slovenská silikátová spoločnosť (člen, 2017-)

Členstvo v organizačných výboroch medzinárodných vedeckých konferencií:

- Norbert Kreidl Memorial Conference, 23.-26.6.2004, Trenčín
- 8. ESG conference, 22-26.6.2008, Trenčín
- Slovenská a česká konferencia o skle, 30.11.-2.12.2011, Trenčianske Teplice

Členstvo v komisiách na TnUAD:

- Člen komisie pre štátne záverečné skúšky II. stupňa vysokoškolského štúdia v študijnom programe 5.2.19 Anorganické technológie a nekovové materiály
- Člen komisie pre štátne záverečné skúšky III. stupňa vysokoškolského štúdia v študijnom programe 5.2.19 Anorganické technológie a nekovové materiály
- Člen komisie pre doktorandské dizertačné skúšky
- Člen komisie pre príjímacie konanie na III. stupeň vysokoškolského štúdia v študijnom programe 5.2.19 Anorganické technológie a nekovové materiály

Vypracované oponentské posudky doktorandských dizertačných prác:

1. xxxxxx: Štúdium potenciálu fluoridových tavenín pre vysokoteplotné aplikácie; Školiteľ: Doc. Ing. Miroslav Boča, PhD.; FCHPT STU Bratislava, 2013.

2. xxxxxx: Termická stabolita oxidových skiel; Školiteľ: Prof. Ing. Eugen Jóna, DrSc.; FPT TnUAD Púchov, 2013.

3. xxxxxx: Skúmanie vplyvu kovových a nekovových povlakov aplikovaných za účelom koróznej odolnosti materiálov; Školiteľ: Doc. Ing. Harold Mäsiar, PhD.; FŠT TnUAD Trenčín, 2015.

Vyžiadané posudky na vedecké grantové projekty v SR:

1. VEGA 1/0410/12: „Diagnostika špeciálnych skiel určených pre aplikácie v infračervenej oblasti spektra pomocou fyzikálnych metód“

2. Bilaterálny projekt SAV – AV ČR: „Vývoj nových pokročilých keramických kompozitov pre vesmírne aplikácie“

Vyžiadané recenzie vedeckých prác v zahraničných karentovaných časopisoch:

Ceramics International:

1. Manuscript CERI-17-01570: „Structural, electrical and antimicrobial characterization of green synthesized ZnO nanorods from aqueous Mentha extract“

2. Manuscript CERI-17-02604 – R1/R2/R3: „Synthesis and Characterization of NiO and Ni nanoparticles using nanocrystalline cellulose (NCC) as a template“

3. Manuscript CERI-17-05523 – R1/R2: „Hierarchical nanostructured VN microspheres assembled with porous nanosheets fabricated by a template-free route“

4. Manuscript CERI-17-05867 – R1: „Fabrication of pure monoclinic VO2 naonoporous nanorods via a mild pyrolysis process“

5. Manuscript CERI-18-00520: „Synthesis and characterization of CoFe2O4/BNT-BT0.08 core-shell nanotubes by a template based sol-gel method“

MRS Communications:

6. Manuscript MRSCOM-2017-0188: „Green inorganic photoluminescence and electroluminescence from Mn doped Zn2GeO4 films“

Optical Express:

7. Manuscript 239926 (2015): „Directional solidification, thermo-mechanical and optical properties of (MgxCa1-x)3Al2Si3O12 glasses doped with Nd3+ ions“

Physics and Chemistry of Glasses:

8. Manuscript PCG-D-15-00008: „Blue emitting YAl3(BO3)4: Tm3+ single-phase phosphors under UV excitation“

9. Manuscript PCG-D-15-00033: „EPR Studies of Strontium Alkali Borate Glasses Doped With Vanadium Ion“

10. Manuscript PCG-D-15-00061 – R1: „The influence of the modifier oxide on optical absorption and fluorescence properties of Sm3+ ion in LiF- B2O3 Glasses“

Stáže v zahraničí:

- University of Gent (Department of Inorganic and Physical Chemistry), Ghent, Belgium, 2013 (1 mesiac)
- CNRS – Institute Charles Sadron, Strasbourg, France, 2001-2003 (2 roky)
- Liverpool John Moores University (School of Chemical and Physical Sciences), Liverpool, UK, 1995 (1 mesiac)
- Technical University Darmstadt (Department of Inorganic Chemistry), Darmstadt, 1997, 1998 (1 mesiac)

Zahraničná a domáca spolupráca:

- CEITEC Brno, ČR
- Otto Schott Institute Jena, Germany
- Yamaguchi University Yamaguchi-shi, Japan
- EU SAV Bratislava

- UACH SAV Bratislava
- FCHPT STU Bratislava

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ČESTNÉ PREHLÁSENIE

Prehlasujem, že údaje uvedené v tomto dokumente sú pravdivé.

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