Děkanovi Fakulty chemicko-technologické
Vysoké školy chemicko-technologické v Praze

Návrh na zahájení řízení ke jmenování profesorem

pro obor anorganická chemie

Jméno: Martin Pumera

Rodné číslo:

Bydliště:

Pracoviště: Ústav anorganické chemie (101)

Návrh písemně podpořili:

1. **Prof. Richard Compton (Oxford University, Velká Británie)**
2. **Prof. Frank Marken (Bath University, Velká Británie)**
3. **Prof. Khourosh Kalantar-zadeh (University of New South Wales, Australia)**

Ke svému návrhu přikládám (podle § 74, odst. 2 zákona č. 111/1998 Sb., o vysokých školách a o změně
a doplnění dalších zákonů) v písemné a elektronické formě:

1. **Soubor v nerozebíratelné úpravě obsahující**
   a) životopis,
   b) přehled pedagogické a odborné činnosti
   c) přehled vědeckých a odborných prací, vynálezecké a realizační činnosti, odborně-společenské aktivity, mezinárodní spolupráce, domácích a zahraničních stáží a nejvýznamnějších tvůrčích aktivit,
   d) stručný pedagogický projekt.
2. **Dále ke svému návrhu přikládám[1]:**
   - doklady o dosaženém vysokoškolském vzdělání a získaných titulech,
   - doklad o habilitačním řízení.

Datum: 14.5.2019 Podpis:

Formulář VŠCHT Praha platný od: 19. 1. 2018

[1]*Doklady se předkládají na děkanát fakulty k nahlédnutí v originále či jako úředně ověřené kopie a vracejí se zpět uchazeči.*

Obsah

Životopis

1.1. Osobní údaje

Jméno: Martin Pumera

Rodné příjmení: Pumera

Datum narození: 1974

Místo narození:

Rodinný stav:

Bydliště:

1.2. Vzdělání a kvalifikace

1992 – maturita, Střední průmyslová škola chemická, Křemencova 12, Praha 2
1997 – magistr (M.Sc.), Universita Karlova v Praze, Přírodovědecká Fakulta, Katedra analytické chemie
2001 – RNDr., Universita Karlova v Praze, Přírodovědecká Fakulta, Katedra analytické chemie
2001 – doktor filozofie (Ph.D.), Universita Karlova v Praze, Přírodovědecká Fakulta, Katedra analytické chemie

1.3. Průběh praxe

2001 - 2002	New Mexico State University, Las Cruces, USA. Post-doc ve skupině prof. Josepha Wanga
2003	University of San Paulo, Visiting Scientist
2004 - 2006	Autonomous University of Barcelona, Španělsko, post-doc pozice, Marie-Curie fellow.
2006 – 2009	National Institute for Materials Science, Tsukuba, Japonsko. Vedoucí skupiny. Permanentní (tenured) pozice.
2010 – 2014	Assistant Professor, Nanyang Technological University, School of Physical and Mathematical Sciences, Division of Chemistry and Biological Chemistry, Singapur
2014 – 2016	Associate Professor, Nanyang Technological University, School of Physical and Mathematical Sciences, Division of Chemistry and Biological Chemistry, Singapur; Permanentní (definitiva) pozice
2017- nyní	Vedoucí centra pro pokročilé funkční nanoboty, VŠCHT Praha.

2018 – habilitace (Doc.), VŠCHT Praha, FCHT, Ústav anorganické chemie.

2. Pedagogická činnost

2.1. Přehled

Předmět (typ studia- magisterské, bakalářské, doktorské)	Rozsah (hod/týden)	Počet semestrů	Druh (P, C, L)	Zkoušeno studentů
Analytical and Bioanalytical Chemistry (bakalářské studium, základní přednáška, druhý ročník, kód CBC211, CM2011) v letech 2010-2016 každý zimní semestr. Přednáška v AJ. NTU Singapur	3	7	P	240-310
Advanced Analytical and Bioanalytical Chemistry (bakalářské studium, výběrová přednáška, čtvrtý ročník, kód CBC411, CM4011) v letech 2010-2016 každý letní semestr. Přednáška v AJ. NTU Singapur	3	7	P	100-150
Graduate Analytical Chemistry (kód CBC721, doktorské studium), přednášky v AJ. NTU Singapur	4	2	P	22
Laboratoř anorganické chemie I (bakalářské, N101003), FCHT, VŠCHT Praha	4	1	L	7
Anorganická Chemie II, FCHT, VŠCHT Praha	2	1	L	228

2.2. Vedení studentů

Obhájené bakalářské práce: 40

Obhájené diplomové práce - počet : 8

1. Chua Xing Juan 2016-2017
   Molybdenum sulfide for energy application
2. Yew Ying Teng 2016-2017
   New layered nanomaterials for sensing applications
3. Vitor Marin 2016
   The influence of molecular structure on the electrochemical oxidation of polyphenols on electrochemically reduced graphene platform
4. Rozi Alice Thearle 2015-2016
   The electrochemical behaviour and sensing applications of modified graphene materials
5. Chee Shan Tan 2014-2015
   Electrochemical studies of layered materials for hydrogen evolution and oxygen reduction reactions
6. Tian Huidi 2014-2016
   Biosensing for food chemistry using graphene based materials as electrochemical flatform
7. Emma. J. E. Stuart 2010-2011
   Impurities within carbon nanotubes and their influence upon electrochemical behavior
8. Claire L. Scott 2010-2011
   Electrochemistry of Carbon Nanomaterials

Obhájené doktorské dizertační práce: 16

Chun Kiang Chua	2010-2013	Top-down approach towards graphene: Synthesis and electrochemistry
Guanjia Zhao	2010-2014	Self-propelled nanomachines
Elaine Chng	2010-2014	Influence of impurities on the electrochemistry of carbon nanotubes and the toxicity of nanomaterials
Hwee Ling Poh	2010-2014	Heteroatom modified nanocarbons and their electrochemistry
Alex Eng Yong Sheng	2012-2016	Graphene, chemically modified graphenes and two-dimensional layered materials –electrochemical fundamentals and applications
Wei Zhe Teo	2012-2016	Voltammetric Detection, Transformation and Toxicity of Engineered Nanomaterials in Aqueous Environment and Application of Micro-/Nanomotors for Environmental Remediation
Adeline Huiling Loo	2012-2016	Nanomaterials for electrochemical biosensing aplications and fundamental studies
Colin Hong An Wong	2012-2016	Chemical modification of graphenes: synthesis and electrochemistry
Lu Wang	2012-2016	Electrochemical studies of carbon nanotubes, graphenes and layered nanomaterials
Rou Jun Toh	2013-2017	Materials for Electrochemical Energy and Sensing Applications
Wang Hong	2013-2017	Synthetic micro/nanomotors: fabrication, motion studies and applications
Muhamad Zafir bin Mohamad Nasir	2013-2017	Electrochemical Detection of Environmental Pollutants and Food Contaminants
Tan Shu Min	2013-2017	Electrochemical Investigations of Layered Materials for Energy Applications
James Moo	2013-2017	Miniaturized motors: self-powered systems for water monitoring and remediation
Chia Xinyi	2014-2018	Exploring layered metal chalcogenides – electrochemistry and applications
Naziah Binte Mohamad Latiff	2014-2018	Layered materials for energy applications: Electrochemistry and toxicity studies

Současné doktorské dizertační práce: 5

Wang Yong	2015-	NTU Singapore (co-supervisor A/P Richard Webster)
Tiana Maric	2016-	NTU Singapore (co-supervisor A/P Richard Webster)
Nashua binte Rohaizad	2016-	NTU Singapore (co-supervisor A/P Richard Webster)
Nur Farhanah binte Rosli	2016-	NTU Singapore (co-supervisor A/P Richard Webster)
Chia HuiLing	2016-	NTU Singapore (co-supervisor A/P Richard Webster)

2.3. Autorství učebních textů a pomůcek, další pedagogické aktivity

Vytváření přednášek a sylabů:
Vytvoření nového sylabu a nových přednášek v předmětu **Analytical and Bioanalytical Chemistry** (CBC211, CM2011) a **Advanced Analytical and Bioanalytical Chemistry** (CBC411, CM4011). Na základě nového sylabu byla vytvořena nová koncepce výuky včetně powerpointových prezentací a dalších výukových pomůcek. Nový program výuky reflektuje moderní trendy v oblasti materiálů a pokročilých technologií jejich výroby a aplikačního využití. Příprava a aplikace konceptu „flipped clasroom“ pro Graduate Analytical Chemistry (CBC721). Vše na NTU Singapur.

Ostatní pedagogické aktivity:
Člen zkušebních komisí pro bakalářské, magisterské a doktorské studium.
Člen komisí pro přijímací řízení na doktorské studium.
Oponent diplomových, disertačních a habilitačních prací (University of New South Wales, Australia, University of Paris Diderot, Chinese University Hong Kong, University of Hong Kong atd.)

2.4. Inovační přínos pro pedagogickou práci

Cena "Excelentní Profesor" 2011-2012 (fakulta fyzikálních a matematických věd, Nanyang Technological University, Singapur, z více než 100 lektorů a profesorů).

Zavedení nové přednášky „Selected Topics from Analytical Chemistry“ na Nanyang Technological University pro doktorandské studium. Přibližně 25 studentů za rok. Vypracování koncepce pro tuto přednášku, která byla společná studentům všech chemických oborů, od analytické chemie přes syntetickou chemii až po teoretickou chemii.

Příprava a implementace nového sylabu byla vytvo***řena nová koncepce výuky včetně*** powerpointových prezentací a dalších výukových pomůcek. Nový program výuky reflektuje moderní trendy v oblasti materiálů a pokročilých technologií jejich výroby a aplikačního využití. Příprava a aplikace konceptu „flipped clasroom“ pro Graduate Analytical Chemistry (CBC721). Vše na NTU Singapur.

2.5. Pedagogický projekt

Přednášková činnost: Moje filozofie výuky spočívá v propojení předmětu s praktickými příklady z průmyslu, ukázat, jaká metoda funguje v reálném životě a která není tak, aby na základě porozumění teorie byli studenti připraveni řešit skutečné problémy chemie obecně a elektrochemie specificky. Tento styl výuky samozřejmě zahrnuje poskytnutí širokého teoretického vědeckého základu. V následujících letech chci pokračovat v tomto přístupu, na který jsem od studentů obdržel velmi pozitivní zpětnou vazbu. Mou vizí do budoucna je poskytnout více příkladů propojení mezi základy, teorií a problémy z reálného světa. Ve skutečnosti veškerá teorie pochází ze snahy vysvětlit pozorované jevy a toto musí být studentům vštěpováno. V budoucnu plánuji také poskytnout příklady on-line, aby studenti mohli prozkoumat použitelnost naučených znalostí při řešení skutečných problémů v oboru. Z mých současných zkušeností jednoduchá demonstrační sada zlepšuje vhled do fenoménů, které se studenti naučili teoreticky, a proto plánuji rozvíjet a rozšiřovat tyto skutečné, fyzické demonstrační kity (v protikladu k prezentaci Power Point), aby dále zlepšili porozumění studentů. Tyto zásady hodlám aplikovat do výuky Teoretických základů elektrochemie, které budou vyučovány na ústavu 101, FCHT.

Začlenění studentů do výzkumných projektů: Vedle přednáškové činnosti považuji za velmi důležité školit studenty na všech úrovních, počínaje bakaláři, přes magistry až po PhD studenty, v aktivním laboratorním výzkumu. Každému vysokoškolskému studentovi poskytuji svůj vlastní výzkumný projekt, zaměřuji se na to, abych je naučil celý proces výzkumu, tj. navrhování experimentu, jeho provedení, analýzu dat a psaní odborné zprávy (publikace). Velká většina bakalářských studentů v mé skupině dokončí svůj program alespoň s jedním recenzovaným článkem. Taková odborná příprava je podle mého názoru neocenitelná pro jejich budoucí práci, ať už v akademické sféře nebo v průmyslu.

3. Vědecká aktivita

3.1. Přehled vědecko-výzkumných a inovačních aktivit

Přehled publikačních aktivit, účasti na konferencích, grantových projektech, udělených patentech a technické realizační činnosti

	Aktivita	**Počet**	**Z toho ve světovém jazyce**	**SC[2]**	**Suma IF/SJR[3]**
1.	Vědecké práce v impaktovaných časopisech evidovaných v databázi Web of Science (WoS)	609	609	20 194	4218.8
2.	Vědecké práce v časopisech evidovaných v databázi Scopus, které nejsou uvedené v databázi Web of Science	0	0	0	0
3.	Vědecké práce v dalších časopisech s recenzním řízením	0	0	0	0
4.	Kapitoly v monografiích, monografie[4]	10	10	0	0
5.	Články v časopisech bez recenzního řízení, články ve sbornících	7	7	7	0
	CELKEM 1 - 5	**633**	**633**	**20194**	**4218.8**

	Aktivita	**Počet**
6.	Osobně přednesené přednášky v zahraničí a na mezinárodních konferencích	65
7.	Spoluautorství ostatních přednášek a posterů na mezinárodních konferencích	92
8.	Osobně přednesené přednášky na národních konferencích	4
9.	Spoluautorství ostatních přednášek a posterů na národních konferencích	6
	CELKEM 6 - 9	**167**
10.	Odpovědný řešitel zahraničních grantů a projektů	16

[2] Suma citací bez autocitací dle příslušné databáze (pro WoS s nastavením All Databases)
[3] Poslední známý IF resp. SJR časopisu
[4] Pro SC se uvádí suma citací bez autocitací dle WoS s nastavením All Databases

11.	Odpovědný řešitel domácích grantů a projektů	4
12.	Spoluřešitel[5] zahraničních grantů a projektů	2
13.	Spoluřešitel domácích grantů a projektů	0
	CELKEM 10 - 13	**22**

	Aktivita	**Počet**
14.	Udělené evropské nebo mezinárodní patenty (EPO, WIPO), patenty USA a Japonska	4
15.	Udělené české nebo jiné národní patenty, které jsou využívány na základě platné licenční smlouvy	0
16.	Udělené české nebo jiné národní patenty, které jsou využívány jen vlastníkem patentu, nebo nejsou využívány	0
17.	Autorství realizovaného komplexního technického díla s udaným společenským přínosem	***0***
18.	Poloprovozy, ověřené technologie	0
19.	Užitné a průmyslové vzory, prototypy, funkční vzorky, software	0
	CELKEM 14 - 19	4

3.2. Vědecké práce v impaktovaných časopisech evidovaných v databázi Web of Science

ResearcherID: F-2724-2010

1. Gusmao, R., Browne, MP., Sofer, Z., Pumera, M.: The capacitance and electron transfer of 3D-printed graphene electrodes are dramatically influenced by the type of solvent used for pre-treatment. *ELECTROCHEMISTRY COMMUNICATIONS.* 102 (): 83-88, 2019. IF 4.4, počet citací (bez autocitací): 0.
2. Reinisova, L., Hermanova, S., Pumera, M.: Micro/nanomachines: what is needed for them to become a real force in cancer therapy?. *NANOSCALE.* 11 (14): 6519-6532, 2019. IF 7.37, počet citací (bez autocitací): 0.
3. Beladi-Mousavi, SM., Khezri, B., Krejcova, L., Heger, Z., Sofer, Z., Fisher, AC., Pumera, M.: Recoverable Bismuth-Based Microrobots: Capture, Transport, and On-Demand Release of Heavy Metals and an Anticancer Drug in Confined Spaces. *ACS APPLIED MATERIALS & INTERFACES.* 11 (14): 13359-13369, 2019. IF 7.5, počet citací (bez autocitací): 0.
4. Krejcova, L., Leonhardt, T., Novotny, F., Bartunek, V., Mazanek, V., Sedmidubsky, D., Sofer, Z., Pumera, M.: A Metal-Doped Fungi-Based Biomaterial for Advanced

[5] Spoluřešitel je osoba, která je spolupříjemci grantu zodpovědná za odbornou část projektu.

Electrocatalysis. *CHEMISTRY-A EUROPEAN JOURNAL.* 25 (15): 3828-3834, 2019. IF 5.32, počet citací (bez autocitací): 0.

5. Tan, SM., Pumera, M.: Two-Dimensional Materials on the Rocks: Positive and Negative Role of Dopants and Impurities in Electrochemistry. *ACS NANO.* 13 (3): 2681-2728, 2019. IF 13.94, počet citací (bez autocitací): 0.

6. Plutnar, J., Pumera, M.: Chemotactic Micro- and Nanodevices. *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION.* 58 (8): 2190-2196, 2019. IF 11.99, počet citací (bez autocitací): 0.

7. Chia, HL., Latiff, NM., Gusmao, R., Sofer, Z., Pumera, M.: Cytotoxicity of Shear Exfoliated Pnictogen (As, Sb, Bi) Nanosheets. *CHEMISTRY-A EUROPEAN JOURNAL.* 25 (9): 2242-2249, 2019. IF 5.32, počet citací (bez autocitací): 0.

8. Mazanek, V., Luxa, J., Matejkova, S., Kucera, J., Sedmidubsky, D., Pumera, M., Sofer, Z.: Ultrapure Graphene Is a Poor Electrocatalyst: Definitive Proof of the Key Role of Metallic Impurities in Graphene-Based Electrocatalysis. *ACS NANO.* 13 (2): 1574-1582, 2019. IF 13.94, počet citací (bez autocitací): 0.

9. Maric, T., Mayorga-Martinez, CC., Nasir, MZM., Pumera, M.: Platinum-Halloysite Nanoclay Nanojets as Sensitive and Selective Mobile Nanosensors for Mercury Detection. *ADVANCED MATERIALS TECHNOLOGIES.* 4 (2): 1800502, 2019. IF 0, počet citací (bez autocitací): 0.

10. Beladi-Mousavi, SM., Pourrahimi, AM., Sofer, Z., Pumera, M.: Atomically Thin 2D-Arsenene by Liquid-Phased Exfoliation: Toward Selective Vapor Sensing. *ADVANCED FUNCTIONAL MATERIALS.* 29 (5): 1807004, 2019. IF 12.12, počet citací (bez autocitací): 0.

11. Khezri, B., Mousavi, SMB., Krejcova, L., Heger, Z., Sofer, Z., Pumera, M.: Ultrafast Electrochemical Trigger Drug Delivery Mechanism for Nanographene Micromachines. *ADVANCED FUNCTIONAL MATERIALS.* 29 (4): 1806696, 2019. IF 12.12, počet citací (bez autocitací): 1.

12. Ying, YL., Pumera, M.: Micro/Nanomotors for Water Purification. *CHEMISTRY-A EUROPEAN JOURNAL.* 25 (1): 106-121, 2019. IF 5.32, počet citací (bez autocitací): 0.

13. Fojtu, M., Balvan, J., Raudenska, M., Vicar, T., Bousa, D., Sofer, Z., Masarik, M., Pumera, M.: Black Phosphorus Cytotoxicity Assessments Pitfalls: Advantages and Disadvantages of Metabolic and Morphological Assays. *CHEMISTRY-A EUROPEAN JOURNAL.* 25 (1): 349-360, 2019. IF 5.32, počet citací (bez autocitací): 0.

14. Mayorga-Martinez, CC., Gusmao, R., Sofer, Z., Pumera, M.: Pnictogen-Based Enzymatic Phenol Biosensors: Phosphorene, Arsenene, Antimonene, and Bismuthene. *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION.* 58 (1): 134-138, 2019. IF 11.99, počet citací (bez autocitací): 0.

15. Cheong, YH., Nasir, MZM., Bakandritsos, A., Pykal, M., Jakubec, P., Zboril, R., Otyepka, M., Pumera, M.: Cyanographene and Graphene Acid: The Functional Group of Graphene Derivative Determines the Application in Electrochemical Sensing and Capacitors. *CHEMELECTROCHEM.* 6 (1): 229-234, 2019. IF 4.14, počet citací (bez autocitací): 1.

16. Palenzuela, CLM., Pourrahimi, AM., Sofer, Z., Pumera, M.: Mix-and-Read No-Wash Fluorescence DNA Sensing System Using Graphene Oxide: Analytical Performance of Fresh Versus Aged Dispersions. *ACS OMEGA.* 4 (1): 1611-1616, 2019. IF 0.0, počet citací (bez autocitací): 0.

17. Browne, MP., Sofer, Z., Pumera, M.: Layered and two dimensional metal oxides for electrochemical energy conversion. *ENERGY & ENVIRONMENTAL SCIENCE.* 12 (1): 41-58, 2019. IF 29.52, počet citací (bez autocitací): 2.

18. Gusmeao, R., Sofer, Z., Pumera, M.: Exfoliated Layered Manganese Trichalcogenide Phosphite (MnPX3, X = S, Se) as Electrocatalytic van der Waals Materials for Hydrogen Evolution. *ADVANCED FUNCTIONAL MATERIALS.* 29 (2): -, 2019. IF 12.12, počet citací (bez autocitací): 0.

19. Mazanek, V., Mayorga-Martinez, CC., Bousa, D., Sofer, Z., Pumera, M.: WSe2 nanoparticles with enhanced hydrogen evolution reaction prepared by bipolar electrochemistry: application in competitive magneto-immunoassay. *NANOSCALE.* 10 (48): 23149-23156, 2018. IF 7.37, počet citací (bez autocitací): 0.

20. Presolski, S., Pumera, M.: Graphene Oxide: Carbocatalyst or Reagent?. *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION.* 57 (51): 16713-16715, 2018. IF 11.99, počet citací (bez autocitací): 0.

21. Pourrahimi, AM., Villa, K., Ying, YL., Sofer, Z., Pumera, M.: ZnO/ZnO2/Pt Janus Micromotors Propulsion Mode Changes with Size and Interface Structure: Enhanced Nitroaromatic Explosives Degradation under Visible Light. *ACS APPLIED MATERIALS & INTERFACES.* 10 (49): 42688-42697, 2018. IF 7.5, počet citací (bez autocitací): 0.

22. Ambrosi, A., Pumera, M.: Electrochemical Exfoliation of MoS2 Crystal for Hydrogen Electrogeneration. *CHEMISTRY-A EUROPEAN JOURNAL.* 24 (69): 18551-18555, 2018. IF 5.32, počet citací (bez autocitací): 0.

23. Rahmanian, E., Mayorga-Martinez, CC., Malekfar, R., Luxa, J., Sofer, Z., Pumera, M.: 1T-Phase Tungsten Chalcogenides (WS2, WSe2, WTe2) Decorated with TiO2 Nanoplatelets with Enhanced Electron Transfer Activity for Biosensing Applications. *ACS APPLIED NANO MATERIALS.* 1 (12): 7006-7015, 2018. IF 0.0, počet citací (bez autocitací): 0.

24. Lim, CS., Sofer, Z., Plutnar, J., Pumera, M.: Fluorographenes for Energy and Sensing Application: The Amount of Fluorine Matters. *ACS OMEGA.* 3 (12): 17700-17706, 2018. IF 0.0, počet citací (bez autocitací): 0.

25. Latiff, NM., Mayorga-Martinez, CC., Sofer, Z., Fisher, AC., Pumera, M.: Cytotoxicity of phosphorus allotropes (black, violet, red). *APPLIED MATERIALS TODAY.* 13 (): 310-319, 2018. IF 0.0, počet citací (bez autocitací): 0.

26. Chia, XY., Pumera, M.: Characteristics and performance of two-dimensional materials for electrocatalysis. *NATURE CATALYSIS.* 1 (12): 909-921, 2018. IF 0, počet citací (bez autocitací): 0.

27. Ambrosi, A., Pumera, M.: Multimaterial 3D-Printed Water Electrolyzer with Earth-Abundant Electrodeposited Catalysts. *ACS SUSTAINABLE CHEMISTRY & ENGINEERING.* 6 (12): 16968-16975, 2018. IF 6.14, počet citací (bez autocitací): 1.

28. Villa, K., Palenzuela, CLM., Sofer, Z., Matejkova, S., Pumera, M.: Metal-Free Visible-Light Photoactivated C3N4 Bubble-Propelled Tubular Micromotors with Inherent Fluorescence and On/Off Capabilities. *ACS NANO.* 12 (12): 12482-12491, 2018. IF 13.94, počet citací (bez autocitací): 0.

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3.3. Vědecké práce v časopisech evidovaných v databázi Scopus, které nejsou uvedené v databázi Web of Science

„Nejsou uváděny“

3.4. Vědecké práce v ostatních časopisech s recenzním řízením

„Nejsou uváděny“

3.5. Kapitoly v monografiích, monografie

Editor monografie

1. **Martin Pumera** *(Ed)*
   Nanomaterials for Electrochemical Sensing and Biosensing, Pan Stanford, Singapore, 2014.

Kapitoly v monografiích

1. **Martin Pumera**
   Nanocarbon Electrochemistry in „Electrochemistry“, Royal Society of Chemistry, UK, 2013,

pp. 104-123.

2. **Martin Pumera**
Enzymatic detection based on carbon nanotubes in *„Methods in Molecular Biology“*, Humana Press, USA, 2010, pp. 197-205.

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Carbon nanotube biosensors based on electrochemical detection in *„Methods in Molecular Biology“*, Humana Press, USA, 2010, pp. 205-213.

4. Samuel Sanchez, Esteva Fabregas, **Martin Pumera***
Detection of biomarkers with CNT-based immunosensors in *„Methods in Molecular Biology“*, Humana Press, USA, 2010, pp. 227-239.

5. **Martin Pumera**
Nanobiomaterials for Electrochemical Biosensors, in „Encyclopedia of Nanoscience and Nanotechnology, 2nd Ed.“ 2010.

6. **Martin Pumera**
Coating of Carbon Nanotubes with Insulating Thin Layers in „Surface Coatings“ (Eds. M. Rizzo and G. Bruno), Nova Publishers, 2010, 259-264.

7. **Martin Pumera**
Nanoparticles and Quantum Dots as Biomolecule Labels for Electrochemical Biosensing in „Nanoparticles: New Research“, Nova Publishers, 2008, 167-173.

8. **Martin Pumera**, Arben Merkoçi, Salvador Alegret
Microchip electrophoresis – electrochemistry systems for analysis of nitroaromatic explosives, in „Electrochemical Sensor Analysis“ (Eds. A. Merkoci and S. Alegret), 2007, pp. 875-885.

9. **Martin Pumera**, Arben Merkoçi, Salvador Alegret
Analysis of nitroaromatic explosives with microchip electrophoresis using a graphite–epoxy composite detector, in „Electrochemical Sensor Analysis“ (Eds. A. Merkoci and S. Alegret), 2007, pp. e351-e356.

10. Maria Teresa Castañeda, **Martin Pumera**, Salvador Alegret, Arben Merkoçi
DNA analysis using gold nanoparticle as labels, in „Electrochemical Sensor Analysis“ (Eds. A. Merkoci and S. Alegret), 2007, pp. e381-e388.

3.6. Články v časopisech bez recenzního řízení, články ve sbornících

„Nejsou uváděny“

3.7. Osobně přednesené přednášky v zahraničí a na mezinárodních konferencích[6]

65. **Martin Pumera,** “3D-printing for point of care sensing”, World Class Universities – NTU Singapore Workshop, Singapore, 30.4.2019 **Invited Talk**

64. **Martin Pumera,** “3D-printing for electrochemical energy”, World Class Universities – NTU

[6] Mezi oficiálními jazyky konference nebyl uveden jazyk český nebo slovenský.

Singapore Workshop, Singapore, 30.4.2019 **Invited Talk**

63. **Martin Pumera,** "Nanorobots in Medicine – Swallow your surgeon?" IXPO Conference, Bratislava, Slovakia, 2019. **Invited Talk**

62. **Martin Pumera,** "Autonomous Micro/Nanomachines: Towards Sense-and-Act Applications" Chinese University of Hong Kong, China, 30.3.2019. **Invited Talk**

61. **Martin Pumera,** "2D Nanomaterials Beyond Graphene", Shenzen University, China,28.3.2019, **Invited Talk**

60. **Martin Pumera,** "2D Nanomaterials Beyond Graphene", Nanjing University, China, 21.3.2019, **Invited Talk**

59. **Martin Pumera,** "Nanorobots: Towards Sense-and-Act Applications", Yonsei University, Seoul, Korea, January 8th 2019 **Invited Talk**

58. **Martin Pumera**, "Chemical Self-Propelled Autonomous Micro/Nano Machines" 10th Singapore International Chemistry Conference Singapore, 19. Dec. 2018. **Invited Talk**

57. **Martin Pumera** "Nanorobots in Medicine" Future Port Prague, 6th Sept. 2018, Czech Republic, **Keynote Lecture**

56. **Martin Pumera,** "Chemical Self-Propelled Autonomous Micro/Nano Machines" Bioelectrochemistry and Bioelectronics of Macromolecules, Brno, Czech Republic, 13th June 2018, **Keynote Lecture**

55. **Martin Pumera,** "Nano and Microrobots", Wuhan University of Technology" China, 22.11.2018 **Invited Talk**

54. **Martin Pumera,** "Impurities in 2D Materials", Wuhan University of Technology, Nov. 21st, 2018 **Invited Talk**

53. **Martin Pumera,** "Nano and Microrobots: Between Cells and Viruses", China University of Mining and Technology, China, 24.11.2018 **Invited Talk**

52. **Martin Pumera,** "Electrochemistry of 2D Materials", 69th Annual Meeting of the International Society of Electrochemistry, Bologna, Italy**,** 3 Sept. 2018, **Keyonote, Invited Talk**

51. **Martin Pumera,** "2D Nanomaterials Electrochemistry & Mirorobots" Nortwestern Polytechnical University, Xian, China 10th July 2018. **Invited Talk**

50. **Martin Pumera,** "Impurities in 2D Materials", Okayama University, Japan, July 5th, 2018 **Invited Talk**

49. **Martin Pumera,** "Nanorobots – Swallow your doctor" Int. Conference on Manipulation, Automation and Robotics at Small Scales (MARSS) 2018 July 4th, Nagoya, Japan, 2018 **Invited Talk**

48. **Martin Pumera,** Micromachines and Environment Invited Talk 2nd MANA Reunion Workshop, March 2018, Tsukuba, Japan. **Invited Talk**

47. **Martin Pumera,** "Future of Chemistry and UCT Prague", UCT Prague 65th anniversary, Prague, Czechia 10.9.2017. **Invited Talk**

46. **Martin Pumera,** "2D Nanomaterials Electrochemistry", Japan-Singapore Chemistry workshop Tokyo Tech University, Japan, 5th Dec 2017. **Invited Talk**

45. **Martin Pumera,** "2D Nanomaterials Electrochemistry & 3D Printing", Southampton University, March 22nd 2017. **Invited Talk**

44. **Martin Pumera,** "2D Nanomaterials Electrochemistry & 3D Printing", Qeensland University of Technology, Australia, Sept 1rd 2017. **Invited Talk**

43. **Martin Pumera,** "2D Nanomaterials Electrochemistry", **The 3rd International Symposium of Advanced Inorganic Materials**, Tsukuba, Japan, August 3rd 2017. **Invited Talk**

42. **Martin Pumera,** "Nanorobots – future of nanotechnology", Griffith University, Australia, Sept 2rd 2017. **Invited Talk**

41. **Martin Pumera,** "Self-powered Microrobots for Environmental Remediation", ***2017 International Conference on Micro/Nanomachines***, Wuhan, China, 26th August 2017. **Invited Talk**

40. **Martin Pumera,** "Electrochemistry of 2D materials", ***German Chemical Society*** in Berlin **Invited Talk** (Frei University Berlin), 17.7.2017.

39. **Martin Pumera,** "Nanomaterials for Sensing" ***ACES Electromaterials Symposium 2017***, 10th Feb, Woolongong, Australia.

38. **Martin Pumera,** "Electrochemistry of graphene, MoS_2 and black phosphorus", ***Electromaterials Science Symposium 2016***, 10th Feb., Deakin, Australia.

37. **Martin Pumera,** "Electrochemistry and micro/nanomachines", ***ESEAC 2016***, June 14th, Bath, UK. (**Keynote**)

36. **Martin Pumera**, "Control and surveillance of micromotors", ***Micro- and Nanomachines: Chemical and Biological Nanomotors 2016***, 29th June 2016, Hannover, Germany. (**Invited Lecture**)

35. **Martin Pumera,** „Electrochemistry of graphene and other layered structures", ***ElecNano7,*** Lille, France, 23rd May, 2016. (**Keynote**)

34. **Martin Pumera,** "Electrochemistry of graphene and beyond", ***Carbohagen 2016***, Copenhagen, Denmark. (**Keynote**)

33. **Martin Pumera**, "Electrochemistry of graphene, MoS_2 and black phosphorus", Electromaterials Science Symposium 2016, Mebourne, Deakin University, Australia.

32. **Martin Pumera**, Electrochemistry of Graphene and Other Graphenoids, 3rd Erlangen Symposium on Synthetic Carbon Allotropes, October 2015, Erlangen, Germany. (**Invited**)

31. **Martin Pumera,** Transition Metal Dichalcogenides, Graphene and Other Layered Systems for Oxygen Reduction and Hydrogen Reduction Electrocatalysis (ECHEMS 2015), Bad Zwischenahn, Germany, June 2015. (**Invited**)

30. **Martin Pumera**, "Graphene in Biosensing", International Conference for Electronic Materials and Nanotechnology for Green Environment (ENGE 2014), Jeju, Korea (Nov 2014; **Keynote**).

29. **Martin Pumera**, "Functional Self-propelled Micro- and Nanorobots and Nanomotors", 3M-Nano, Taipei, Taiwan Oct 2014. p 37 (**Invited**)

28. **Martin Pumera,** "Magnetotactic and Chemotactic Behavior of Nano, Micro and Macroscopic Self-Propelled Autonomous Devices", International Workshop on Micro- and

Nanomachines, July 2014 / Hannover, Germany (Keynote) **Invited Talk**

27. **Martin Pumera**, "Electrochemically Deposited Nano- and Micromachines", ECHEMS (Electrochemistry in Molecular Understanding), Wells, UK, (Jun 2014). **Invited Talk**
26. **Martin Pumera**, "Graphene electrochemistry: dopants and impurities", Dasan conference, Jeju Grand Hotel, Jeju, Korea (Nov. 2013) **Invited Talk**
25. **Martin Pumera**, "From graphene to nanomotors", Hanyang University, Seoul, Korea (Invited, Nov. 2013) **Invited Talk**
24. **Martin Pumera**, "Micro and nanomotors", Sandia Natl. Laboratories, Albaquerque, USA (June 2013). **Invited Talk**
23. **Martin Pumera**, "Graphene related materials and their electrochemistry", Sandia Natl. Laboratories, Albaquerque, USA (May 2012). **Invited Talk**
22. **Martin Pumera**, "Graphene Electrochemistry", National Institute for Materials Science, Tsukuba, Japan (June 2012). **Invited Talk**
21. **Martin Pumera**, "Electrochemistry of Chemically Modified Graphenes", New Mexico State University, La Cruces, USA (May 2012). **Invited Talk**
20. **Martin Pumera**, Keynote Lecture on „Electrochemistry of Graphene-based Mateirals“, 27th Philippine Congres, April 2012, Manila. **Invited Talk**
19. **Martin Pumera**, Electrochemistry of Graphene. New Mexico State University, Las Cruces, USA (June 2011). **Invited Talk**
18. **Martin Pumera**, Nanomaterials Meet Microfluidics. University of West Virginia, Morgantown, USA (June 2011). **Invited Talk**
17. **Martin Pumera**, Electrochemistry of Graphene and Carbon Nanotubes. Institute for Integrative Nanosciences, Dresden, Germany (Sept. 2010). **Invited Talk**
16. **Martin Pumera,** *Electrochemical Nanobiosensors and Biochips*, University of Geneva, Switzerland (10.6.2009) **Invited Talk**
15. **Martin Pumera,** *On Electrochemistry of Carbon Nanotubes*, Faculty of Mathematics and Physics, Charles University, Czech Republic (5.5.2009) **Invited**
14. **Martin Pumera,** *Impurities in Carbon Nanotubes*, Workshop NIMS-Technical University of Pardubice, Czech Republic (19.4.2009) **Invited**
13. **Martin Pumera,** *Nanomaterials for electrochemical biosensing*, IndoJapanese Workshop on NanoBioTechnology and NanoDevices, Sastra University, India (23.1.2009) **Invited**
12. **Martin Pumera,** *Nanomaterials for electrochemical biosensing*, NaoBio Seoul 2008, South Korea (30.10.2008) **Invited**
11. **Martin Pumera,** *Lab-on-a-chip platforms for analysis of explosives: separation and detection principles*, **Plenary lecture**. 1st Workshop on analytical miniaturization, University of Alcala, Spain. (plenary, 22.7.2008) **Invited**
10. **Martin Pumera,** *On Electrochemistry of Carbon Nanotubes*, Japanese-Czech Republic Materials Science Workshop, Technical University of Pardubice, Czech Republic (23.6.2008) **Invited**
9. **Martin Pumera,** *Redox Protein Noncovalent Functionalization of Double-Wall Carbon*

Nanotubes: Electrochemical Binder-less Glucose Biosensor Electrochemistry of nucleic acids and proteins, Institute of Biophysics, Brno, Czech Republic (21.6.2008) **Invited**

8. **Martin Pumera,** *On Electrochemistry of Carbon Nanotubes*, IEEE International Nanoelecronics Conference 2008, Shaghai, China (27.3.2008) **Invited**
7. **Martin Pumera,** *Nanomaterials for fabrication of electrochemical biosensors*, Special Seminar of Inorganic and Organic Department, Charles University, Prague (14. 3. 2008). **Invited**
6. **Martin Pumera,** *Micro and nanotechnology in electrochemical detection science. Part 1. Nanomaterials based electrochemical biosensors; Part 2. Lab-on-a-chip with electrochemical detection*, Japanese Institute for Advanced Science and Technology, Kanazawa, Japan. (12.11.2007) **Invited**
5. **Martin Pumera,** *Nanomaterials-based Electrochemical Biosensors*, Minisymposium in Bioanalytical Chemistry, 2007, ETH, Switzerland. (12.7.2007) **Invited**
4. **Martin Pumera,** *Electrochemistry in Micro and Nano Detection Science*, 4th International Symposium on Bioscience and Nanotechnology, 2006, Okinawa, Japan (7.11.2006) **Invited**
3. **Martin Pumera,** *Micro and nanotechnology in electrochemical detection science*, ICYS Special Seminar, NIMS, Tsukuba, Japan (15.09.2006)
2. **Martin Pumera**, *Nanomaterial-based electrochemical biosensing*, iNano, Department of Physics and Astronomy, University of Aarhus, Denmark. (25.11.2005) **Invited**
1. **Martin Pumera**, *Conversion of biomolecular information into electric one: electrochemical biosensing at surfaces and interfaces*, National Institute of Material Science (NIMS), Tsukuba, Japan. (31.10.2005) **Invited**

3.8. Osobně přednesené přednášky na národních konferencích

1. **Martin Pumera,** *Uhlík: od Damašských šavlí až po vesmírný výtah*, VSCHT Praha, Czech Republic, konference učitelů 28.8.2018 (zvaná přednáška)
2. **Martin Pumera**, Lubomír Rulíšek, Ivan Jelínek, Jaques Barbe, Radka Matalová, *Correlation between electrophoretic behavior of chiral and achiral isomers in cyclodextrin modified systems and their structure: molecular modeling.* Advance in chromatography and electrophoresis, Pardubice, Czech Republic, 2000, 58.
3. **Martin Pumera**, Ivan Jelínek, Jindřich Jindřich, *Use of newly synthetized cyclodextrins in capillary electrophoresis*, Physical chemistry at the end of the second millenium, Brno, Czech Republic, 2000, 30.
4. **Martin Pumera**, Jan Muzikář, Jiří Barek, Ivan Jelínek, *Determination of amino derivatives of polycyclic aromatic hydrocarbons using capillary electrophoresis*, 52nd conference of Czech chemical societies, České Buďejovice, Czech Republic, 2000, 964.

3.9. Odpovědný řešitel zahraničních grantů a projektů

2016	**RIE2020 ADVANCED MANUFACTURING AND ENGINEERING (AME) INDIVIDUAL RESEARCH GRANT (IRG), A*Star, Singapore,** (no. 16283019) "Advanced Autonomous Functional Nanorobots"	**732,000 SGD** (~500,000 EUR)
2016	**Tier 1, Ministry of Education, Singapore** (No. RG 123/16) "3D Printed Electrochemical Devices"	**80,000 SGD** (~53,000 EUR)
2014	**Tier 1, Ministry of Education (Singapore)** (no. RG99/13, 03/2014-02/2017) "Long-Range Communication and Interaction of Artificial Self-Propelled Nanomotors: Towards Artificial Intelligence of Selfpropulsed Nanomachines"	**300,000 SGD** (~200,000 EUR)
2013	**Tier 2, Ministry of Education (Singapore)** (no. MOE2013-T2-1-056, 11/2013-10/2016) "Graphene Nanosensor for Ultrasensitive Pesticide Detection on Lab-on-Chip"	**730,429 SGD** (~504,000 EUR)
2013	**Tier 1, Ministry of Education (Singapore)** (no. RGT1/13, 11/2013-10/2016) "Multiple Mycotoxins Rapid Screening for Food Quality Control using Lab on Chip Devices"	**200,000 SGD** (~138,000 EUR)
2013	**SMA, Ministry of Education (Singapore)** (no. M4119036; 04/2013-12/2016) "Nanoarchitected Surfaces for Multiplex Detection of Biomolecules"	**312,000 SGD** (~205,000 EUR)
2012	**JSPS-NTU (Japan-Singapore)** (no. NTU/NUS-JSPS M4080881; 04/2012-03/2014) "DNA detection using redox active nanoparticles"	**76,000 SGD** (51,000 EUR)
2012	**Ministry of Defense (Singapore)** (no. MINDEF-NTU-JPP/11/02/06; 04/2012-10/2013) "Graphene-based Sensor for Highly Sensitive Detection of Explosives in the Sea Water for Detection of Underwater Mines"	**80,000 SGD** (~53,000 EUR)
2010	**Ministry of Defense (Singapore)** (no. MINDEF-NTU-JPP/10/07; 09/2010-03/2012) "Ultra Trace Detection of High Explosives by Micro-Total Analytical System with Dual Electrochemical Amperometric/Contactless Conductivity Detector"	**50,000 SGD** (~33,000 EUR)
2009	**NAP Starting Grant (NTU, Singapore)** (no. M4080512; 01/2010-03/2016) "Graphene sensors", total	**2,700,000 SGD** 1M SGD of start up consumables + 1.2 M SGD worth of PhD fellowships +0.5 M SGD for large

		equipment (~1.800,000 EUR)
2009	**ERC Starting Grant 2009 (EU)** (ERC-2009-StG no. 239262; 04/2010-03/2015) "Simultaneous Detection of Multiple DNA and Protein Targets on Paramagnetic Beads Packed in Microfluidic Channels using Quantum Dots as Tracers"	**1,400,000 EUR** (~2,100,000 SGD)
2009	**MANA competitive equipment fund (MEXT, Japan)** (04/2009-03/2010) "Electrochemical scanning nanoscopy"	**25,000,000 JPY** (~190,000 EUR)
2008	**NIMS start-up (MEXT, Japan)** (04/2008-03/2009) "Nanobiodevices"	**9,000,000 JPY** (~60,000 EUR)
2007	**Marie Curie OIF (EU)** (FP7-PEOPLE-2007-4-1-IOF, gr. no. 219293) "Insulated Programmable Carbon Nanotube Nanowires with DNA Recognition for Nanoelectronics Applications"	**372,000 EUR**
2006	**ICYS (Ministry of Education (MEXT), Japan)** (07/2006-03/2008) "DNA guided nanoelectronics"	**10,000,000 JPY** (70,000 EUR)
2004	**Marie Curie IEF (EU)** (no. 005738; 03/2005-06/2006) "LABCHIP-MULTIPLEXDNA"	**110,000 EUR**

3.10. Odpovědný řešitel domácích grantů a projektů

2019	**EXPRO grant**, GAČR, Česká republika	**49,586,000 CZK**
2017	**Center for Advanced Functional Nanorobots, OPVVV,** Česká republika (219,452,000 CZK; grant no. 15_003/0000444)	**219,452,000 CZK**
2004	**NATO Science Foundation (NATO),** Česká republika (no. 9/2004; 09/2004-02/2005) "Microfluidic systems for DNA sensing"	**7,000 EUR**
2000	**Karlova Universita** (GAUK), Česká republika "Newly synthetized cyclodextrins for capillary electrophoresis"	**81,000 CZK**

3.11. Spoluřešitel[7] zahraničních grantů a projektů

2018	**MSCA-IF-2017 — Individual Fellowships** no. 795347 — UGMNanoSens Marie Sklodowska-Curie individual Fellowships European to Dr. Lorena Manzanares, M. Pumera is Chief Investigator/Supervisor	**3,569,000 CZK** **(142,720 EUR)**
2014	**CREATE, Cares Inc. (Singapore)** (no. C4T - IRP 2.3; 04/2014-04-2018) "Electrochemical Multi-Scale Science, Engineering and Technology"	**635,000 SGD** (~423,000 EUR)

3.12. Spoluřešitel domácích grantů a projektů

„Nejsou uváděny“

4. Technická a realizační činnost

4.1. Udělené evropské nebo mezinárodní patenty (EPO, WIPO), patenty USA a Japonska

1. **Martin Pumera**
   Carbon nanotubes coated uniformly with ultrathin nanoprecise organically modified silica layers, 2008, Japanese Patent Office application filled
   (Application no.: 2008-314948)
2. **Martin Pumera,** Izumi Ichinose
   Carbon nanotubes coated uniformly with ultrathin nanoprecise europium hydroxide layers, 2007, Japanese Patent Office application filled
   (Application no.: 2007-206502)
3. **Martin Pumera**, Jie Tang, Izumi Ichinose
   Biosensive carbon nanotubes noncovalently functionalized with redox protein without polymer binder, 2007, Japanese Patent Office application filled (Application no.: 2007-103464)
4. **Martin Pumera**, Xinsheng Peng, Jie Tang, Izumi Ichinose
   Carbon nanotubes coated uniformly with ultrathin nanoprecise polypyrrole layers; 2007, Japanese Patent Office application filled
   (Application no.:2007-004956)

4.2. Udělené české nebo jiné národní patenty, které jsou využívány na základě platné licenční smlouvy

„Nejsou uváděny“

[7] Spoluřešitel je osoba, která je spolupříjemci grantu zodpovědná za odbornou část projektu.

4.3. Udělené české nebo jiné národní patenty, které jsou využívány jen vlastníkem patentu, nebo nejsou využívány

„Nejsou uváděny“

4.4. Autorství realizovaného komplexního technického díla s udaným společenským přínosem

„Není uváděno“

4.5. Poloprovozy, ověřené technologie

„Nejsou uváděny“

4.6. Užitné a průmyslové vzory, prototypy, funkční vzorky, software

„Nejsou uváděny“

4.7. Expertizní činnost

Posudková činnost pro soukromý sektor, Hewlet Packard, P&G, Bosch Singapore.

5. Organizační a odborně-společenská činnost s oborem související

5.1. Členství a funkce v mezinárodních a národních odborných společnostech

American Chemical Society (USA) – od roku 2006
Japanese Chemical Society (Japonsko) – od roku 2006
Royal Chemical Society (Velká Británie) – od roku 2012
American Association for the Advancement of Science (USA) – od roku 2012

5.2. Členství v odborných komisích a poradních orgánech

Fond Dagmar Procházkové, VŠCHT Praha.
McLean Award, University of Toronto.
REAXYS price (on invitation of Prof. Nakamura).

5.3. Členství a funkce v redakčních radách odborných časopisů

Editor in Chief: Applied Mateirals Today (Elsevier, Cite Score 9.90) (2016-now)
Associate Editor: PCCP (Physical Chemistry and Chemical Physics, RSC, IF 4.5 (2015-2016);
Associate Editor: Science and Technology of Advanced Materials (IF 3.22);

Member of Editorial Board:
Chem. Eur. J. (since 2014),
ChemElectroChem (since 2014),
Electrochem. Commun. (since 2014),
Electrophoresis (since January 2009),
The Chemistry Record (since 2011),
Electroanalysis (since 2012).

Special issues guest editor

2017 Adv. Funct. Mater. (IF 12.12): “Micro- and nanomachines on the move” (Wang, Pumera, Fisher)
2017 Appl. Mater. Today (IF 5.71): “2D Materials Electrochemistry” (Pumera)
2016 Analyst (IF 3.8): "Graphene in analytical sciences" (Pumera)
2015 Electrophoresis *"Electrochemistry in (Bio)-Nanoanalysis, Electromigration and Liquid Phase Separations" (Escarpa&Pumera)*
2015 Sci. Tech. Adv. Mater (IF 3.2): "Rising Stars in Materials Science" (Aono, Pumera, Ariga)
2015 Electrochim Acta (IF 3.5): "Graphene in electrochemistry" (Pumera, Polsky, Banks)
2014 Anal & Bionanal Chem. (IF 3.5): "Graphene in analytics (Pumera, Polsky, Banks)
2014 Electroanalysis (IF 2.8): “Graphene and its electrochemistry” (Pumera, Polsky, Bonanni)
2013 J. Mater. Chem. (IF 5.9): “Rising Stars in Nanoarchitectonics” (Ariga&Pumera)
2013 Nanoscale (IF 5.9): *"Micro and Nanomotors"(Pumera&Sanchez)*
2013 Electrophoresis (IF 3.3): *"Electrochemistry in (Bio)-Nanoanalysis, Electromigration and Liquid Phase Separations" (Pumera&Escarpa)*
2012 Int. J. Nanotech: *"Nanotechnology in the Czech Republic"(Pumera)*
2012 Chem Rec. (IF 4.6): *"90 years of poloarography" (Pumera)*
2011 Curr. Phys. Chem.: *"Advanced Materials and Nanotechnology in DNA Detection" (Pumera)*
2011 Electrophoresis (IF 3.3): *"Electrochemistry in Microfluidics and Capillary Electrophoresis" (Pumera&Escarpa)*
2009 Electrophoresis (IF 3.3): *"Electrochemistry in Microfluidics and Capillary Electrophoresis" (Pumera&Escarpa)*
2007 Talanta (IF 3.8): *“Micro- and Nanotechnology in Electrochemical Detection Science” (Pumera&Escarpa*

5.4. Členství a funkce v organizačních výborech konferencí

2019 Academic Committee, 2019 International Conference on Micro and Nanomachines, Hairbin, China.

2019 Main organizer, Sustainable Energy and Smart Mobility Workshop, NTU Singapore – UCT Prague – CEITEC BUT Brno, held in the Czech Republic on February 18-19; 2019

2018 Člen vědeckého výboru konference; Bioelectrochemistry and Bioelectronics of Macromolecules, Brno, 12-15 June 2018

2016 Panel chair, Session 2 MATERIALS FOR ENEGRY, ElecNano7, Lille, France.

2014 Panel chair, ECHEMS - Electrochemistry in Molecular Understanding, Wells, UK.

2010 Research/Industry Chair SENSORDEVICES 2010, Venice, Italy, July.

2009 NIMSWEEK09, Epochal Tsukuba, Japan, July.

2008 1st workshop on analytical miniaturization, University of Alcala, Spain, July.

5.5. Členství a funkce v oborových radách grantových agentur

***ERC-StG** 2018, 2016, 2014 (European Research Council)*; *Research Directorate of **European Commission** [FP7-NMP-2008-SMALL ; FP7-ICT (Micro and Nanosystems) and ISTC programs]*,

*Greek Science Foundation; Portugeese Science Foundation; Belium NSFR; Czech GACR; A*STAR Biomedical Research Council (BMRC) (Singapore);*

5.6. Ocenění výzkumné a vývojové práce

2018 **Cena rektora VŠCHT Praha** za mimořádné výsledky ve výzkumu a úspěšnou propagaci vědy.

2018 **2018 Highly Cited Researcher** (Thomson-Reuters/Clarivate)

2017 **2017 Highly Cited Researcher** (Thomson-Reuters/Clarivate)

2016 **Editorial Board Award** in recognition of being *Editorial Board Member who published the greatest number of articles in all RSC journals in 2013-2015.* (RSC 2016, London).

2015 & 2016 **Angew. Chem. (Wiley)** – top 5% referee

2012 **Young Researcher Award 2012** (one of top 5 worlds young scientists) by International Union of Materials Research Societies (IUMRS) and the Materials Research Society of Singapore (MRS-S) Award

2012 **SPMS Teaching Excellence Award 2011-2012** (School of Physical and Mathematical Sciences, out of >100 Lecturers and Professors)

2012 **SPMS Young Researcher Award** – top young professor among 100 professors.

2008 **TOP REFEREE of 2007** of J. Chromatogr. A, based on evaluation of editors for the most precise and helpful referee comments.

2002 **Award for outstanding post-docs** by Association of Laboratory Automation (USA).

2001 **Award for outstanding post-docs** by Association of Laboratory Automation (USA).

6. Zahraniční spolupráce a pobyty v zahraničí

Zahraniční pobyty:

2010-2017, Nanyang Technological University, Singapore, Assoc. Prof., permanentní (tenured) pozice.

2006-2009, National Institute for Materials Science, Tsukuba, Japan; group leader (vedoucí skupiny); permanentní (tenured) pozice.

2004-2006 Marie Curie Post-doc fellow, Autonomous University of Barcelona, Spain.

2003 Visiting Scientist, Sao Paolo, Brazílie

2001-2002, New Mexico State University, USA; post-doctoral researcher

Zahraniční spolupráce:

Prof. S. Mhailsakar Nanyang Technological University, Singapur
Prof. K. Ariga, National Institute for Materials Science, Japonsko
Prof. J. Wang, University of California at San Diego
Prof. A. Fisher, Cambridge University
Prof. M. Hersam, Northwestern University, USA

7. Nejvýznamnější tvůrčí aktivity

Nanoroboti: Samohybné autonomní nanostroje - jsou novým paradigmatem v nanotechnologiích. Tato autonomní zařízení sbírají energii ze svého okolí, sami se navigují, jsou schopny vytvářet roj a selektivně vyhledávat specifické buňky nebo chemické druhy. Tyto mobilní, samopohyblivé a samoorganizující se nanoroboti nesou chemické funkční skupiny, které jsou použity v bioomedicíně jakožto i v aktivní dekontaminaci při ekologických haváriích.

Martin Pumera byl u počátku tohoto pole a založil Centrum pro Pokročilé Funkční Nanoroboty na VŠCHT Praha. Práce v tompto poli přinesla desítky publikací ve špičkových žurnálech, jako jsou Chem. Rev., Angew. Chem Int. Ed., ACS Nano, Adv. Funct. Mater., JACS a další.

Elektrochemie Nanomateriálů: Dlouhobě se věnujeme výzkumu který koreluje strukturu a složení materiálů, zejména 1D a 2D materiálů, jejich s elektrochemickými vlastnostmi těchto materiálů. Studujeme vliv hustoty defektů, obsahu heteroatomů (dopantů a nečistot), krystalové struktury atd. na rychlosti transferu elektronů a na potenciál vývinu vodíku a redukce kyslíku. Tato práce vyústila v cca 400 publikací a přispěla ke změně uvažování celé komunity. Publikace vyústili do např. Nature Catalysis, desítku ACS Nano, ACS Catalysis, Adv. Funct. Mater. atd. článků.

3D tisk v elektrochemii: Tato aktivita je v naší skupině od roku 2016. 3D tisk umožňuje obrovskou flexibilitu v designu elektrod, avšak je v současnosti limitován použitými materiály. V naší skupině vyvíjíme nové postupy a materiály rozvíjející tuto novou oblast, s aplikacemi v detekci a elektrochemické konverzi energie. Práce vyústila ve více než desítku článků v top žurnálech.

8. Příloha A: Evaluace přednášejícího na NTU Singapore (2010-2016)