MASARYKOVA UNIVERZITA

Annex No. 14 to the MU Directive on Habilitation Procedures and Professor Appointment Procedures

Evaluation Board Decision on the Nomination for Appointment to Professor

Masaryk University	
Faculty	Faculty of Science
Procedure field	Physical Chemistry
Applicant	**Dr. Jan Hrbáč, Associate Professor**
Applicant's home unit, institution	Department of Chemistry

Board members

Chair	Prof. Libuše Trnková, CSc. *Department of Chemistry, Faculty of Science, Masaryk University, Brno*
Members	Prof. Přemysl Lubal, Ph.D. *Department of Chemistry, Faculty of Science, Masaryk University, Brno*
	Prof. Petr Vanýsek, CSc. *Department of Electrical and Electronic Technology* *Faculty of Electrical Engineering and Communication* *Brno University of Technology*
	Prof. Jiří Ludvík, CSc. *Department of Molecular Electrochemistry and Catalysis* *J. Heyrovsky Institute of Physical Chemistry, Prague*
	Prof. Dr. Günter Fafilek *Institute of Technologies and Analytics* *Technical University, Vienna*

Evaluation of the applicant's scholarly/artistic qualifications

Dr. Jan Hrbáč graduated in the field of Inorganic Chemistry at the Faculty of Science of Palacky University in Olomouc in 1995. After his master's study he started a PhD study at the Department of Inorganic & Physical Chemistry and he defended his PhD thesis in 2002. At the Department of Physical Chemistry he defended also the rigorous (RNDr.) thesis in 2004. His habilitation procedure (in Physical Chemistry) successfully completed in 2009 with the habilitation thesis: *Application of Electrochemical Methods for Determination of Compounds Interesting from the Point of View of Physiology.* The applicant´s research area is aimed at the development of functional layers for electrochemical and optical sensors. In electrochemical sensors his attention is focused on electrocatalytic layers that are formed by nanomaterials

and/or layers granting selectivity towards desired species. These approaches can be useful for the preparation of both microelectrodes and screen printed electrodes. In the case of optical sensors he is trying to create metal layers exhibiting the surface enhanced Raman effect.

Dr. Jan Hrbáč has good experience in the surface modification of carbon fiber microelectrodes, for example by a novel powerful technique - the spark discharge. Among his skills are programming in LabView, electronics and mechanical constructions. His research is reflected in many publications (now 62 articles, 13 proceedings papers, 1 meeting abstract, according to WoS) in the field of electrochemistry, material and analytical chemistry; his *h index* was 16 at the time of the Appointment initiation (now 18). He participated as a principal investigator or investigator in 12 grants and projects (GAČR – 3, COST LD – 1, FRVŠ – 3, KONTAKT – 2, Innovation vouchers – 2, MPO FR-TIP – 1). The GAČR projects ("*The formation of nitric oxide in biological systems and possibilities of its modulation, Carbon microfiber electrodes modified by electrochemical surface treatment and nanostructured metal layers as cutting-edge HPLC-EC detectors*", and "*Nanostructured metal layers on conductive and semiconductive substrates as a sensing platform for application in chemical and biomedical analysis*") reflect the applicant´s development in the research field. It is noteworthy to mention that in 2014-2017 Jan served as a Member of Management Committee of COST action MP1302 Nanospectroscopy.

Dr. Jan Hrbáč has a rich reviewing activity for a number of journals in the field of his research interest, e.g, Electrochimica Acta, Sensors and Actuators B: Chemical, Analytica Chimica Acta, Electroanalysis, Journal of Solid State Electrochemistry, Bioelectrochemistry, Talanta, and Journal of Nanoparticle Research.

Conclusion: The applicant's scholarly capabilities ***meet*** the requirements expected of applicants participating in a professor appointment procedure in the field of Physical Chemistry.
Závěr: Vědecká kvalifikace uchazeče **odpovídá** požadavkům standardně kladeným na uchazeče v rámci řízení na jmenování profesorem v oboru fyzikální chemie.

Evaluation of the applicant's pedagogical experience

Dr. Jan Hrbáč is active also in teaching. At the time when he was at Palacky University he taught courses of Photochemistry, Electrochemistry and Physical Chemistry at both the Bachelor and Master levels. His teaching activity included also class exercises (English for Chemists), laboratory courses (Advanced Physical Chemistry) and seminars (Physical Chemistry). From 2015 Jan conducts the courses of Electrode Kinetics and Computerized measurement systems and participates in teaching of Advanced Physical Chemistry. He is the author of three textbooks: Hrbáč J. Základy práce s PC, VUP Olomouc, 2007; ISBN: 978-80-244-1934-3; Hrbáč J. Aplikace počítačů v měřících systémech pro

chemiky, VUP Olomouc, 2013, ISBN 978-80-244-3753-8; and Hrbáč J., Kvítek L., Nevěčná T. Cvičení z fyzikální chemie, VUP Olomouc, 2013, ISBN 978-80-244-3857-3.
He successfully supervised 21 Bachelors, 12 Masters and 3 PhD students; two Ph.D. students defended their theses in electrochemistry (Vladimír Halouzka: Electrodes modified with nanoparticles and mesoporous layers and their use as chemical sensors and biosensors and Petr Jakubec: The preparation of carbon microfiber based electrochemical sensors and their utilization in batch and flow systems). The topic of Ph.D. thesis of Adéla Kotzianová was "*Raman Spectroscopy in Diagnostic Methods of Nanofibrous Polymeric Materials*" solved in collaboration with CONTIPRO company. All these are working as researchers (Tomas Bata University in Zlín - RCPTM, Palacky University in Olomouc, Contipro Dobrouč).

Conclusion: The applicant's pedagogical capabilities ***meet*** the requirements expected of the applicants participating in a professor appointment procedure in the field of Physical Chemistry.
Závěr: Pedagogická způsobilost uchazeče **odpovídá** požadavkům standardně kladeným na uchazeče v rámci řízení na jmenování profesorem v oboru fyzikální chemie.

Evaluation of the applicant as a respected and recognized scholarly or artistic figure in a given field

During his carrier, Dr. Jan Hrbáč was a visiting research fellow at National Research Center "Demokritos" in Athens, Greece (three months stay, two times) and School of Pharmacy, Hebrew University of Jerusalem, Israel (one year stay). In addition to these contacts, Jan established a fruitful collaboration with the group of Prof. M. I. Prodromidis, Ioannina University, Greece. He regularly attends international conferences in Electrochemistry and Electroanalysis (ISE conference, ESEAC, ElecNano, Euroanalysis etc.) with oral and poster contributions. We would like to mention that in 2001 he was a recipient of Support for Young Scientists from International Society for Bioluminescence and Chemiluminescence (2001), and holds an Elsevier Reviewer Recognition (Sensors and Actuators B (2015), Electrochimica Acta (2016). His name is associated with four patents.

Based on the above presented data, the committee concludes that Dr. Jan Hrbáč is one of the renowned experts in Electrochemistry, especially in the application and development of a novel powerful technique of electrode surface modification by spark discharge or by catalytically active polymer layers.

Conclusion: The applicant ***is*** a respected and recognized scholarly figure in his field. The applicant ***has*** made a significant contribution to the development of his field. The applicant ***constitutes*** a leading figure in his field of scholarship or research.
Závěr: Uchazeč je význačnou a uznávanou vědeckou osobností v daném oboru. Významně se zasluhuje o rozvoj tohoto oboru. Představuje jednu z vůdčích osobností vědecké školy.

Secret vote results

Number of board members		5
Number of votes cast		5
of which	in favour	5
	against	0
	invalid	0

Board decision

Based on the outcome of the secret vote and following an evaluation of the applicant's scholarly or artistic qualifications, pedagogical experience and role as a respected and recognized scholarly or artistic figure, the board hereby submits a proposal to the scientific board of the Faculty of Science, Masaryk University to

☒ appoint the applicant professor of Physical Chemistry.

☐ terminate the procedure.

In Brno, 15th November 2018

Prof. Libuše Trnková, CSc.

Prof. Přemysl Lubal, Ph.D.

Prof. Petr Vanýsek, CSc.

Prof. Jiří Ludvík, CSc.

Prof. Dr. Günter Fafilek