MUNI

Habilitation Board Decision on the Nomination for Appointment to Associate Professor

Masaryk University	
Faculty	Faculty of Science
Procedure field	Analytical Chemistry
Applicant	Mgr. Markéta Holá, Ph.D.
Applicant's home unit, institution	Faculty of Science, Masaryk University
Habilitation thesis	Laser-matter interaction as a key process for sampling by laser ablation
Board members	
Chair	prof. RNDr. Přemysl Lubal, Ph.D. *Faculty of Science, Masaryk University*
Members	prof. RNDr. Jiří Barek, CSc. *Department of Analytical Chemistry, Faculty of Science, Charles University* prof. RNDr. Martin Mihaljevič, CSc. *Institute of Geochemistry, Mineralogy and Mineral Resources, Faculty of Science, Charles University* prof. Ing. Miloslav Pouzar, Ph.D. *Center of Materials and Nanotechnologies, Faculty of Chemical Technology, University of Pardubice* Prof. Dr. Carla Vogt *Institute of Analytical Chemistry, Faculty of Chemistry and Physics, TU Bergakademie Freiberg, Germany*

Evaluation of the applicant's scholarly/artistic qualifications

Dr. Markéta Holá finished her MSc. studies in Analytical Chemistry at Faculty of Science, Masaryk University (MU), Brno, Czech Republic in year 2000. There she continued as a Ph.D. student in the same program, and she defended her Ph.D. Thesis "Analysis of powder materials by the method of laser ablation with optical emission spectrometry in inductively coupled plasma" in year 2004. After her defence of Ph.D. Thesis, she is employed gradually as Specialist (2004-2009) and then Scientific Researcher (2009-2024) at MU. Dr. Holá was appointed as Assistant Professor at the Department of Chemistry, Faculty of Science of MU during this year. She was also working at Central European Institute of Technology (CEITEC) of MU in period 2011-2018. She underwent 2 study/research stays in Spain (1999 – Universidad Autonoma de Barcelona (3 months), 2008 – Universidad da Coruna (2 months) and some short stays in Switzerland (2004, 2007 – ETH Zürich), Italy (2008 – Synchrotron Elelectra Trieste), Finland (2019 – Onkalo spent nuclear fuel repository) and France (2022 - Université de Lorraine, Nancy.

Her research is focused on the study of fundamental processes of laser ablation for application in chemical analysis, further the ICP-MS using laser ablation for imaging and dating and/or for trace analysis of geological samples.

Markéta Holá is the author of 2 chapters in books and 43 publications which have been citated about 450-times, resp. 370-times without auto citations (H-index 14) where she is 12-times mentioned as the first author and 5-times as corresponding author (according to Web of Science). The most of papers belongs to Q1 and Q2 (34 papers, > 75 % of overall scientific activity) and they are result of the long-term cooperation with various research groups of geologists and mineralogists from the Czech Republic and abroad. This research was supported by one research grant "Study of properties of aerosol generated by laser beam interaction with powdered samples for plasma spectrometry techniques" (Principal Investigator) of Grant Agency of the Czech Republic (GA CR) in period 2007-2009. In addition, she was involved as collaborator in 3 grants of GA CR and grants supported by Ministry of Education of the Czech Republic (3) and Academy of Sciences of the Czech Republic (1).

Dr. Holá took part in organization of events offered by Ioannes Marcus Marci Spectroscopic Society (ICP course in period 2009-2023, the laser-ablation course 2016 and 2021). She was also the member or chair of organizing committee of the European Symposium of Atomic Spectrometry in 2022 and 2024 which proves her visibility in scientific community of atomic spectrometry.

Conclusion: The applicant's scholarly/artistic capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Analytical Chemistry.

Evaluation of the applicant's pedagogical experience

Dr. Markéta Holá is also involved in teaching activities at MU since 2009. She is lecturing in special courses Trace analysis of geological samples or as a leader in lab courses in doctoral program Analytical Geochemist. She is teaching in Lab courses of Analytical Chemistry in Bc and MSc programs for chemists, biochemist and biologists. Now she is advisor of one Ph.D. Student (Jan Dobeš), 3 MSc and one BSc. student Diploma Thesis, while 10 BSc and 10 MSc. works of her studens were already successfully defended. The general popularisation activity of candidate is based on two publications. However, the teaching activity is relatively short, the student's responses are positive highlighted to explain the topics clearly. In addition, the public Habilitation lecture given on 26.9. 2024 was also positively evaluated.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Analytical Chemistry.

MUNI

Habilitation Board Decision on the Nomination for Appointment to Associate Professor

Habilitation thesis evaluation

The Habilitation Thesis "Laser-matter interaction as a key process for sampling by laser ablation" is a collection 12 scientific papers devoted to study and application interactions between laser pulse and analyte. The articles have been published in specialized journals focused on analytical spectroscopy or mineralogy/geology. Dr. Holá sufficiently describes her contribution to all twelve articles from all aspects of elemental analysis of geological samples. This could help to shed light on solving different problems in this research field. The habilitation Thesis was reviewed by three external reviewers: Professor Barbara Wagner (Faculty of Chemistry, University of Warsaw, Poland), Assoc, Prof. Tomáš Černohorský (Faculty of Chemical Technology, University of Pardubice) and Assoc. Prof. David Milde (Faculty of Science, Palacký University, Olomouc). Their reports are positive, and all three reviewers appreciated the high quality of presented articles which brings the new methodology for analysis of geological samples. All referees also have supported the awarding Dr. Holá by the academic title Associate Professor of Analytical Chemistry.

Conclusion: The applicant's habilitation thesis **meets** the requirements expected of habilitation theses in the field of Analytical Chemistry.

MUNI

Habilitation Board Decision on the Nomination for Appointment to Associate Professor

Secret vote results

Voting took place: electronically

Number of board members		5
Number of votes cast		5
of which	in favour	5
	against	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 habilitation thesis, the board hereby submits a proposal to the Scientific Board of the Faculty of Science of Masaryk University to **appoint the applicant associate professor** of Analytical Chemistry.

In Brno on 10.10.2024

prof. RNDr. Přemysl Lubal, Ph.D.