Evaluation Board Decision on the Nomination for Appointment to Professor

Masaryk University	
Faculty	Faculty of Science
Procedure field	Physics of Plasma
Applicant	doc. Mgr. Pavel Souček, Ph.D.
Applicant's home unit, institution	Faculty of Science, Masaryk University
Board members	
Chair	prof. RNDr. Mirko Černák, CSc. *Faculty of Science, Masaryk University*
Members	prof. RNDr. Ivan Ohlídal, DrSc. *Faculty of Science, Masaryk University* Prof. Paul Heinz Mayrhofer *Faculty of Mechanical and Industrial Engineering, Technische Universiat Wien, Austria* prof. Ing. Tomáš Polcar, Ph.D. *Department of Control Engineering, CTU in Prague* Prof. Jyh-Wei Lee *Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taiwan*

Evaluation of the applicant's scholarly/artistic qualifications

Pavel Souček is distinguished scientist in the fields of Plasma physics and the overlapping fields of Materials science and Materials chemistry. His work covers areas ranging from diagnostics of the deposition plasma and the deposition process through research and development of novel deposition processes and procedures to atomistic design and preparation of new materials with promise for future applications in machining and sustainable energy. The quantity and quality of her scientific outputs exceed the standards required for a professorship in the field of Plasma physics in the Czech Republic.

Pavel Souček finished his Ph.D. in 2013 and habilitated in 2019 at the Masaryk University, both in the field of Plasma physics. Within the Czech Republic, he has also experience from his part-time work at the Institute of Physics of Materials of the Czech Academy of Sciences, v.v.i. His scientific interests cover areas from pure plasma physics to pure materials science, and he is a strong supporter of an interdisciplinary approach in these two fields. For this approach and for his contributions in the areas of hard coatings and lightly high entropy ceramics, he is also highly valued in the worldwide scientific community.

His value in the community can documented by his intensive collaboration with foreign researchers that has been ongoing all the way from his studies. He has spent several months at the CNRS Jean Rouxel Institute of Materials in Nantes, France, the University of Groningen, the Netherlands and Uppsala University, Sweden. Also, he was on many fruitful shorter visits, with the most successful collaborations being at the HUN-REN Centre for Energy Research in Budapest, Hungary, resulting in long-standing collaboration in atomic scale analyses and Platit, Selzach, Switzerland, resulting in enhanced collaboration with the industry. Lately, doc. Souček is even enhancing his activities in this area as new collaborations arranged in the last year incorporate collaborations with prestigious institutions like Linköping University, Sweden, Tokyo Metropolitan University, the National Institute for Materials Science (Japan), and the National Cheng Kung University, Taiwan.

Currently, he is the PI of a fundamental research project funded by the Czech Science Foundation dealing with the research of new high entropy ceramic coatings, co-PI of an applied research project dealing with industrial deposition of thin film metallic glasses and a faculty task leader in an NCK project investigating thin films for electron optics. Now and in the past, he has been a part of numerous projects ranging from plasma diagnostics to materials science.

On 16th of January 2025, he has h-index of 16 calculated from 70 publications indexed in WoS with 419 citations without self-citations. His 2 newest papers in Surface and Coatings Technology (Q1 in Journal impact factor) from 01/25 and 02/25 have not yet been indexed.

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

Evaluation of the applicant's pedagogical experience

Pavel Souček has been pedagogically active at the Department of plasma physics and technology since 2011. In the last two years, he has been teaching 9-10 courses per year. He is the guarantor of four of them. The most notable are 12 semesters leading the exercises to a compulsory course Introduction to microphysics, where he will be taking over the lectures from 2026, 3 semesters of compulsory course Introduction to nanotechnology in Czech and English mutation that he guarantees. He is involved in the lecture Physics of materials and thin films and in a new CORE course Materials and mankind, that he is preparing. From practical laboratory courses, he was doing the compulsory course Physical Laboratory 3, where he was, for example, crucial for the development of interactive online courses under less than-ideal conditions of COVID. Pavel Souček significantly enhances the availability of interdisciplinary courses between plasma physics and materials science, enhancing the scope of the Plasma physics study programme.

Pavel Souček was the supervisor of 6 successfully defended bachelor theses, 4 master theses and 1 doctoral thesis. Currently, he is supervising 1 bachelor, 1 master and 2 doctoral students. The quality of Pavel Souček as a supervisor can also be judged by his recently finished Ph.D. student and him receiving the MUNI vice-rector award for excellent achievements of doctoral students and their supervisors in 2023.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a professor appointment procedure in the field of Physics of Plasma.

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

During his academic career spanning more than a decade, Pavel Souček has emerged as a distinguished figure in his field. He is renowned in the Czech Republic as well as abroad. This can be deduced from his international collaborations and papers summarised earlier, his conference contributions as well as his service to the scientific community.

Pavel Souček has presented five invited presentations at different conferences, the most important being at the International Conference on Metallurgical Coatings and Thin Films (ICMCTF) 2022 in San Diego, USA, which is one of the leading conferences in the wider field and at HiPIMS Today in 2025. His contribution to the field of high entropy alloys has been recognised by his taking over chairing the high entropy section at ICMCTF for 2025-2027. He is the main Czech organiser of Heart of Europe Conference bringing together researchers from the Czech Republic, Slovakia and Austria yearly rotating between these countries. Apart from conferences, he was also invited to present seminars in academia (e.g. Tokyo Metropolitan University, Uppsala University, Charles University,...) and in the industry (Dormer Pramet, Platit,...). He is a reviewer for many journals in the field and also Government of The Czech Republic within Methodic 17+, Slovak Research and Development Agency, The Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (MESRaSSR) and Slovak Academy of Sciences (SAS). He has been on the Ph.D. defence committees at the Masaryk University, Brno, University of Technology, CZ University of West Bohemia in Pilsen, CZ and Comenius University, Bratislava, SK.

Conclusion: The applicant **is** a respected and recognized scholarly figure in his/her field. The applicant **has** made a significant contribution to the development of his/her field. The applicant **constitutes** a leading figure in his/her field of scholarship or research.

MUNI

Evaluation Board Decision on the Nomination for Appointment to 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 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 of Masaryk University to **appoint the applicant professor** of Physics of Plasma.

In Brno on 19.02.2025

prof. RNDr. Mirko Černák, CSc.