

Masaryk University	
Faculty	Faculty of Science
Procedure field	Physical Chemistry
Applicant	Mgr. Ondřej Zobač, Ph.D.
Applicant's home unit, institution	Dpt. of Experimental studies and Modelling of Structure, Institute of Physics of Materials, The Czech Academy of Sciences, v.v.i.
Habilitation thesis	Experimental and theoretical study of phase diagrams
<u>Board members</u>	
Chair	prof. RNDr. Mojmir Šob, DrSc. <i>Faculty of Science, Masaryk University</i>
Members	prof. RNDr. Jan Vřešťál, DrSc. <i>MU - Faculty of Science</i> Ing. Martin Zelený, Ph.D. <i>Ústav materiálových věd a inženýrství, VUT v Brně</i> prof. Dr. Ing. David Sedmidubský <i>University of Chemistry and Technology, Prague</i> Ao.Univ.-Prof. Mag. Dr. Hans Flandorfer <i>University of Vienna, Faculty of Chemistry</i>

Evaluation of the applicant's scholarly/artistic qualifications

Dr. Zobač focuses on the development of new materials, the construction of experimental phase diagrams, and the modelling of phase equilibria using the CALPHAD method for alloys with a wide range of applications. He has achieved numerous noteworthy results in his scientific work. He is, among other accomplishments, the principal author of two chapters and a co-author of four chapters in two monographs published by MSI that summarize current knowledge on phase equilibria and thermodynamic properties of solder and magnetic materials.

The SCOPUS database lists 37 of the candidate's works published in impacted international journals (14 of which are first-authored articles) and 435 citations, excluding all types of self-citations. An example of a paper that has been very well received by the scientific community is the article "Zobač et al, Experimental Description of the Al-Cu Binary Phase Diagram, MMTA, 2019," which reached 136 citations. Overall, the candidate's contributions to phase diagram research are well recognised, as evidenced by comparatively high citation rates and an h-index of 10.

The candidate has led 3 scientific research projects as the principal investigator (including 1 foreign FWF Lisa-Meitner M2293-N34 project, and 2 mobility projects) and has contributed to 5 additional projects as a team member (1 foreign, and 4 domestic projects: 3 GAČR, 1 OP JAK). He is currently the internal group leader within the OP JAK MATUR project (CZ.02.01.01/00/22_008/0004631) at the Institute of Physics of Materials of the Czech Academy of Sciences.

During his first postdoctoral stay (2015-2016), he worked in the National University of Science and Technology «MISIS» in Russian Federation under the scientific supervision of Prof. Alan Dinsdale, one of the world's most renowned experts on the CALPHAD method. Thanks to his above-mentioned FWF Lisa-Meitner project, he completed a two-year postdoctoral fellowship at the University of Vienna in Austria from 2017 to 2019. Cooperation with the University of Vienna is still active and the candidate has a unpaid position of "Senior researcher" since 2025.

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

Evaluation of the applicant's pedagogical experience

Over the past five years, Dr. Zobač taught four courses in the field of physical chemistry and materials engineering at Masaryk University (MU) and Brno University of Technology (BUT) in Brno. These are MU: C1040 General Chemistry – Seminar (2020-2022), BUT: WMO Materials Modeling I – Lecture and Seminar (2020-present), MU: C8080 Analytical Electron Microscopy – Lecture (2022-present). He completely redesigned the course C8080 Analytical Electron Microscopy and created new teaching materials, including a practical demonstration of working with a scanning electron microscope.

Dr. Zobač has successfully supervised 3 bachelor and 3 master theses (MU). He is currently supervising doctoral students D. Mikšík (MU) and A.V. Thelappurath (CEITEC VUT) and 1 bachelor's student J. Bruzlová (MU). He has also been actively involved in working with high school students over an extended period, during which he has supervised a total of 5 students competition works with the support of South Moravian Centre for International Mobility (JCMM).

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

Habilitation thesis evaluation

Dr. Zobač's habilitation thesis is a commented collection of 15 published papers; the commentary is 40 pages long. These papers are devoted to phase equilibria of materials in the field of durals and thermoelectrics. The thesis is divided into two chapters. The first chapter, "Experimental Description of Phase Diagrams", describes the procedure of constructing experimental phase diagrams and demonstrates it on selected technologically promising systems. The second chapter, "The CALPHAD Method", summarizes the basic concepts and innovations of the semi-empirical thermodynamic approach CALPHAD and the candidate's main scientific contributions in this area.

The work was assessed by three independent reviewers: Dr hab. inž. Przemysław Fima, Prof. PAN, Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Kraków, Poland, RNDr. Viera Homolová, PhD., Institute of Materials Research, Košice, Slovak Republic and prof. Ing. Bedřich Smetana, Ph.D., VŠB - Technická univerzita Ostrava, Fakulta materiálově-technologická, Katedra chemie a fyzikálně-chemických procesů, Ostrava. All three reviewers agree on the topicality of the subject of the Thesis and state that the thesis brings many new results in the field of phase diagrams for selected systems. All of them value high quality of scientific results presented in the Thesis, although they have several comments and questions. The applicant elaborated in writing detailed replies to these comments and questions and all reviewers expressed their satisfaction with the replies. The habilitation Thesis of Dr Zobač entitled "Experimental and theoretical study of phase diagrams" fulfills requirements expected of a habilitation thesis in the field of Physical Chemistry.

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

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 Physical Chemistry.

In Brno on 13.03.2026

prof. RNDr. Mojmír Šob, DrSc.