

PUBLIC LECTURE EVALUATION

Masaryk University

Faculty	Faculty of Science
Procedure field	Physical chemistry
Applicant	Mgr. Ondřej Zobač, PhD
Lecture date	26 February 2026...
Lecture topic	Synthesis and characterisation of less common alloys...
Persons present (number)	19 on-site + 2 on-line.....
Designated evaluators (board members)	prof. RNDr. Mojmír Šob, DrSc. (chairman, on-site) Ing. Martin Zelený, Ph.D. (committee member, on-site) prof. Dr. Ing. David Sedmidubský (committee member, on-line) ao. Univ.-Prof. Mag. Mag. Dr. Hans Flandorfer (committee member, on-line)

The public lecture of Mgr. Ondřej Zobač, PhD took place at the Masaryk University Campus Bohunice, building C12, room no. 311, from 10:00 till 11:00 a-m. . The lecture was delivered in English and took 40 minutes, followed by a 20-minute discussion. The chairman and one domestic member of the habilitation committee were present in person, two other members of the habilitation committee (prof. Sedmidubský and prof. Flandorfer) were connected on-line.

The topic of the lecture, "Synthesis and characterisation of less common alloys", was selected by the chairman of the committee out of three topics proposed by applicant.

The opening part of the lecture was devoted to general classification of the less common alloys from the point of view of application, structure and crystallinity. After that the applicant delivered an overview of various synthesis routes. Then we heard an extended survey of methods applied for structural characterization of less common alloys. Including various types of microscopies, X-ray and synchrotron diffraction, thermal characterization etc. In the concluding part of the talk, the applicant discussed his binary phase diagram collection (<https://binarypd.github.io/>) containing more than cca 700 binary phase diagrams.

The scientific content of the lecture was well balanced. It was easy to understand the talk for the general public and undergraduate students in the audience, but details of interest to experts in the field were also included. The lecture was delivered in clear language, and the most of the statements were accompanied by illustrative examples. Both the preparation and the presentation of this public habilitation lecture clearly confirmed the applicant's didactic and pedagogical as well as professional qualities. The prepared images were easy to read, contained easily assimilated amounts of information, and the accompanying spoken

commentary was factual, clearly articulated, well-explained, and of high didactic and professional quality.

The lecture was followed by an extensive discussion that showed the audience's interest in the presented topic. Specific questions from the members of the habilitation committee were also answered during the discussion:

- Are the high entropy alloys really single-phase materials with homogeneous distribution of the individual components, or do they exhibit some phase separation, clustering or concentration fluctuations? All these effects actually contribute to the configurational entropy lowering compared to ideal mixing assumed in HEA concept.
- What was your contribution in the Binary Phase Diagram project and what is the inherent data format of the stored models?
- Why single crystalline materials should have no defects as written at a slide of the presentation?
- Are in high entropy alloys adopting the bcc-structure really fully randomly distributed? Can you see superstructure lines in XRD-patterns?
- For what else than phase analysis based on known crystal structures is XRD very important?
- In your talk, you introduced and described well-established methods that you use for alloy preparation and analysis. Could you comment on recent developments or future trends in this field, and on any methods you plan to use in the future?
- Could you please provide more details on the 3D printing setup using metallic powder?

Dr. Zobač addressed these questions thoroughly, providing additional context, and occasionally speculating on future developments in the field.

Conclusion

The lecture delivered by Mgr. Ondřej Zobač, PhD, entitled "Synthesis and characterisation of less common alloys" and delivered as part of the habilitation appointment procedure, **demonstrated** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation appointment procedure in the field of Physical Chemistry.

The lecture took place in a hybrid form on 26 February 2026 in the period of 10-11 am. The above-mentioned members of the board attended the lecture and provided its evaluation. All designated evaluators are familiar with the text of the evaluation and agree with it.

Date: March 4, 2026

[Mojmír Šob]

[Martin Zelený]