

## PUBLIC LECTURE EVALUATION

### Masaryk University

<b>Faculty</b>	Faculty of Science
<b>Procedure field</b>	Condensed Matter Physics
<b>Applicant</b>	Ing. Jiří Orava, Ph.D.
<b>Lecture date</b>	2. 11. 2022
<b>Lecture topic</b>	Manipulating the Range of Glassy States: Methods beyond Traditional Quenching
<b>Persons present</b> (number)	27 on-site, 2 online (prof. Safa Kasap, member of the habilitation board; prof. Tomáš Wágner)
<b>Designated evaluators</b> (board members)	prof. Mgr. Dominik Munzar, Dr. (on-site) prof. RNDr. Jiří Pinkas, Ph.D. (on-site) prof. Mgr. Tomáš Kruml, Ph.D. (on-site)

The lecture was attended by twenty-nine persons, twenty-seven on-site and two online, among them four members of the habilitation board (Munzar, Pinkas, Kruml, and Kasap). Orava started with a brief description of his present research activities at Jan Evangelista Purkyně University in Ustí nad Labem and continued with a popular introduction to the physics of metallic glasses (MG), that was combined with a presentation of his own scientific results. In particular, he addressed a kinetically facilitated liquid-liquid transition in a metallic liquid (Cheng, Sun, Orava et al., *Acta Materialia* 2022), his efforts to enhance the deformability (i.e., to suppress the shear band nucleation and/or propagation) of MGs, results of his study of CuZrAl MG (Orava et al., *Nat. Commun.* 2021) and a MG-based analogue of *Mimosa pudica* (Li, ..., Orava et al., *Science Advances* 2022).

Orava succeeded in keeping the audience's attention, his presentation was very dynamic, providing exciting examples not only from the field of MGs but also from related fields of biology (mechanical properties of spider's web, physics behind the ability of some animals to survive freezing temperatures etc.), and Orava also presented an interesting experiment demonstrating unusual mechanical properties of liquidmetal. In the discussion following the lecture, Orava answered eight questions addressing methods of synthesis of MGs, differences between different MGs at the microstructure level, Young's modulus of MGs, the properties of hybrid crystal-liquid systems, mechanisms of nucleation as compared to oxide glasses etc., and the answers were satisfactory.

### Conclusion

The lecture delivered by Jiří Orava as a part of the habilitation procedure **demonstrated** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Condensed Matter Physics.

The lecture took place in a hybrid form and started at 3 p.m. 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: 23. 11. 2022

Dominik Munzar .....  
signature

Jiří Pinkas .....  
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Tomáš Kruml .....  
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