

## Brief Characteristics of the Candidate for Habilitation at CTU in Prague

Candidate: RNDr. Zdeněk Mihula, Ph.D.

### A) In the field of pedagogy

- 1) The number of PhD. students led by the candidate who successfully defended their thesis: 0
- 2) The number of successfully defended Master/Bachelor Thesis led by the candidate: 1
- 3) The most significant achievement of the candidate in the field of teaching: Regular lectures on Complex Analysis at the Faculty of Electrical Engineering.  
Dean's award to the best teachers, Mathematical Analysis 2, practices, summer term 2018/2019, Faculty of Mathematics and Physics, Charles University.  
Dean's award to the best teachers, Mathematical Analysis 2, practices, summer term 2021/2022, Faculty of Electrical Engineering, Czech Technical University in Prague.
- 4) Evaluation of the candidate in the student survey in the last four semesters:  
Winter semester 2022/2023, Complex Analysis, Averaged rating  $\bar{\varnothing}=1.16$   
Summer semester 2021/2022, Mathematical Analysis 2,  $\bar{\varnothing}=1.0$   
Winter semester 2021/2022, Complex Analysis,  $\bar{\varnothing}=1.09$   
Summer semester 2020/2021, Mathematical Analysis 2,  $\bar{\varnothing}=1.16$   
Regarding the results of the student survey, the habilitation committee considers that comments of students more important. For example (Complex Analysis, Winter Semester 2022/23): *Pan doktor Mihula je jedním z nejlepších přednášejících, které jsem kdy měl. Je vidět, že mu záleží na kvalitě výuky, a snaží se vycházet studentům vstříc. Pan doktor Mihula je velice ochotný, poskytuje hodně materiálů a vysvětluje pochopitelně i nepochopitelnou látku.* He was also mentioned in the all-faculty student survey as one of the best teachers. Quote: *Chtěl bych ocenit výuku a přístup, od schopnosti vysvětlit látku po množství skvělých studijních materiálů, pana doktora Zdeňka Mihuly, kterého považuji za nejlepšího vyučujícího, kterého jsem na fakultě potkal.*

### B) In the field of research

- 1) The three most important original works where Dr. Mihula is the only author:  
Z. Mihula: Optimal behavior of weighted Hardy operators on rearrangement-invariant spaces. *Math. Nachr.* **296** (2023), 3492–3538.  
Z. Mihula: Embeddings of homogeneous Sobolev spaces on the entire space. *Proc. Roy. Soc. Edinburgh Sect. A* **151** (2021), 296–328.  
Z. Mihula: Poincaré–Sobolev inequalities with rearrangement-invariant norms on the entire space. *Math. Z.* **298** (2021), 1623–1640.
- 2) H-index excluding autocitations and autocitations of coauthors: 3.
- 3) The number of citations in WOS/Scopus without autocitations: 23.
- 4) Stay at foreign workplaces:  
In the period 2019–2020, Z. Mihula spent 9 months at the Ohio State University in USA, where he wrote two research papers jointly with J. Lang. He has also been giving lectures in Siegmundsburg (Germany), Portorož (Slovenia), and Aveiro (Portugal). He also spent some time on short stays abroad, for example at University of Salerno, University Complutense in Madrid. These stays resulted in several joint papers written in the frames of international collaboration.

- 5) Two most significant grant projects:  
Grant No. 1056119 of the Grant Agency of Charles University (principal investigator)  
Fulbright research grant no. 2019-22-03 at the Ohio State University in USA.
- 6) Application of candidate's results in practice:  
The scientific results of the candidate are of a purely theoretical nature. They have been published in high-level mathematical journals. Since they concern fundamental research, their direct applications in practice can be achieved much later.
- 7) The most distinguished recognition by the scientific community:  
First prize in "Students Scientific Activity and Expert Activity" in the section Mathematical Analysis, awarded by the Czech Mathematical Society in 2017.  
His lecture, invited by organizers of a minisymposium, is scheduled at the 9<sup>th</sup> European Congress of Mathematics to be held in Seville in July 2024.
- 8) The most important service to scientific community:  
He was elected as a member of the first cohort of EMYA (EMS Young Academy), an extremely prestigious organization created recently by the European Mathematical Society in order to strengthen the role and perspective of the young generation of mathematicians in Europe.  
Reviews for MathSciNet and several scientific journals; Anal. Math., Stud. Math., Czechoslovak Math. J., J. Math. Anal. Appl., Stud. Sci. Math. Hung., etc.  
Organization of several conferences and Spring schools.  
Member of the committee no. 20460 for the State final doctoral examinations and PhD. defenses (branch Mathematical Analysis) at the Faculty of Mathematics and Physics, Charles University.

Chair of the habilitation committee: *Miroslav Kučera*

Other members: *Alex Cioba*  
*J. Ml*

Prague, March 25, 2024

*Jan Franci*