

Masaryk University	
Faculty	Faculty of Science
Procedure field	Mathematics - Mathematical Analysis
Applicant	Dr. András Rontó
Applicant's home unit, institution	Brno University of Technology, Faculty of Business and Management
Habilitation thesis	Parametrisation methods for constructive analysis of boundary value problems for ordinary differential equations
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Evaluation of the applicant's scholarly/artistic qualifications

Dr. András Rontó received his Ph.D. in 1998 in Kiev State University, supervised by Professor M. Perestyuk. His professional experience includes the assistant professor at the Faculty of Business and Management, Brno University of Technology (since 2019) and the research position at the Institute of Mathematics of the Czech Academy of Sciences (2004-2021).

The main direction of research of Dr. Rontó is the theory of boundary value problems for ordinary and functional differential equations. His results concern the solvability analysis of boundary value problems for functional differential equations, the qualitative study of solutions of nonlinear differential systems with symmetries, and the constructive methods of investigation of boundary value problems, which is the topic the habilitation thesis is focused on. The methods developed by Dr. Rontó, in collaboration with several co-authors, allow to approximately solve various classes of boundary value problems for nonlinear systems and at the same time prove theorems of continuation type stating the existence of solutions. An original approach to the construction of solutions of boundary value problems for ordinary differential equations with state-dependent impulses was suggested. Other results include, in particular, sophisticated theorems on the existence, Lyapunov asymptotic stability and instability of symmetric solutions of interesting classes of nonlinear equations, which extend classical results known in the periodic case.

Dr. Rontó is the author or co-author of 69 original research articles, among which 32 articles are in journals listed in the WoS Core Collection database and 8 in the Scopus database (till March 31, 2021), and 1 work is a book chapter.

The papers of Dr. Rontó have 73 WoS citations (without self-citations) and his WoS h-index is 8.

Dr. Rontó supervised two doctoral candidates, Vita Pylypenko (Masaryk University, Faculty of Science) and Jana Varha (Yuriy Fedkovych Chernivtsi National University, Faculty of Mathematics and Informatics), both had successfully defended their theses in 2017.

He has a fruitful collaboration with foreign institutions, in particular with Comenius University (M. Fečkan), São Paulo State University (S.M. Afonso), Mathematical Institute of the Slovak Academy of Sciences (N. Dilna), and with Palacký University Olomouc (L. Rachůnek, I. Rachůnková). He lectured on his results at many international conferences and workshops.

Dr. Rontó was a member of the research teams of a project of the Grant Agency of the Czech Republic and the project A-Math-Net Applied Mathematics Knowledge Transfer Network of the Ministry of Education and Sports (2011-2014).

He obtained four awards, in particular the prestigious *Otto Wichterle Award for young researchers of Academy of Sciences of the Czech Republic* (2008), and *Prize of the President of Ukraine* for young scientists (2002) awarded for a series of research works.

The Habilitation Committee states that Dr. Rontó is a mature scientific personality with high-quality scientific results, regular publications, and good international response.

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

Evaluation of the applicant's pedagogical experience

The pedagogical qualification of Dr. Rontó includes full-semester lectures, exercises and seminars on Mathematics in several Bachelor's courses at Faculty of Business and Management and Faculty of Mechanical Engineering, Brno University of Technology (exercises and

seminars since 2015, lectures since 2019) and at Mendel University in Brno (2010-2011). Since 2021, he is teaching a full -semester course for Bachelor's students at the Pedagogical Faculty of the Masaryk University.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Mathematics - Mathematical Analysis.

Habilitation thesis evaluation

The habilitation thesis of Dr. Ronto titled "*Parametrisation methods for constructive analysis of boundary value problems for ordinary differential equations*" includes 8 original research papers published in period 2013-2018, supplemented by a common extensive introduction (38 pages).

The Habilitation Committee addressed three internationally recognized experts in the field of mathematical analysis as opponents. They are Alexander Domoshnitsky, Full Professor (Ariel University, Israel), Nino Partsvania, Full Professor (International Black Sea University and Andrea Razmadze Mathematical Institute, Georgia) and Milan Tvrđý (Mathematical Institute of the Czech Academy of Science). All opponents highly appreciate the scientific level and novelty of Dr. Ronto's work and achieved results.

Conclusion: The applicant's habilitation thesis **meet** the requirements expected of habilitation theses in the field of Mathematics - Mathematical Analysis.

