

Jan Hamhalter

Curriculum vitae

born in Klatovy, 18th July, 1960

Education and Qualification

- 2002: Full Professor in Applied Mathematics, Czech Technical University in Prague.
- 1994: Habilitation in Applied Mathematics, Czech Technical University in Prague.
- 1989: CSc. (\sim Ph.D.) in Mathematical Analysis, Czech Technical University in Prague.
- 1984: RNDr. in Mathematical Analysis, Faculty of Mathematics and Physics, Charles University in Prague.
- 1984: Graduate with distinction, Mathematical Analysis, Faculty of Mathematics and Physics, Charles University in Prague.

Professional Career

- 2006 – present: Head of the Department of Mathematics, Faculty of Electrical Engineering, Czech Technical University in Prague.
- 2003 – 2006: Deputy Head of the Department of Mathematics, Faculty of Electrical Engineering, Czech Technical University in Prague.
- 2003 (3 months): Mathematical Institute, Erlangen University, Germany, von Humboldt Fellowship.
- 2002 – present: Full Professor, Department of Mathematics, Faculty of Electrical Engineering.
- 2000 (4 months): Mathematical Institute, Erlangen University, Germany, von Humboldt Fellowship.
- 1996 – 1997 (14 months): Mathematical Institute, Erlangen University, Germany, von Humboldt Fellowship.
- 1994 – 2002: Associate Professor, Department of Mathematics, Faculty of Electrical Engineering, Czech Technical University in Prague.
- 1993 (3 months): Department of Mathematics, Reading University, UK, EU COST Research Fellow.
- 1987 – 1994: Assistant Professor, Department of Mathematics, Faculty of Electrical Engineering, Czech Technical University in Prague.
- 1985 – 1987: Ph.D. study, Department of Mathematics, Faculty of Electrical Engineering, Czech Technical University in Prague.

Research

Research interests: theory of operator algebras (C^* -algebras, von Neuman algebras, Jordan C^* -algebras, Jordan triples), preserver theory, mathematical formalism of quantum theory.

Publication activities

- 99 papers on operator algebras, Jordan structures, quantum measure theory, preservers, and foundations of quantum theory, published in important international journals (85 publications in WOS).
- Research monograph: J.Hamhalter, *Quantum Measure Theory*, Kluwer Academic Publishers, Dordrecht, Boston, London (2003), Book Series: Fundamental Theories of Physics, Vol. 134. 418 pages, ISBN 1-4020-1714-6. This book summarizes recent as well as classical results on states and measures on operator algebras and related problems of axiomatic quantum theory (Gleason Theorem for von Neumann projection lattices, completeness criteria for inner product spaces, automorphisms of quantum systems, decoherence functional, Jauch-Piron states, independence of quantum systems, etc.). Among others it contains author's contributions, some new results and insights.
- J.Hamhalter: Quantum Structures and Operator Algebras, Handbook of Quantum Logic and Quantum Structures, 285-333, Elsevier, Amsterdam, 2007. (Chapter in the book.)
- 4 Lectures Notes of Czech Technical University (in Czech), Calculus I, with M.Demlová, 1994; Diferenciální počet funkcí více proměnných, with J.Tišer, 1996; Integrovaný počet funkcí více proměnných, with J.Tišer, 1996, 2022; Funkce komplexní proměnné, with J.Tišer, 2001, 2017.
- Active participation in 33 international conferences. Invited series of lectures in "Workshop on Measure Theory and Real Analysis", Gorizia, Italy, September (1999) and "Workshop on Measure Theory and Real Analysis, Grado, Italy, (2001). Principal speaker at the conferences: Quantum Structures V, Cesena-Cesenatico, Italy, (2001); Quantum Structures VII, Denver University, Colorado, USA (July, 2004). Invited speaker at the conference Preservers Everywhere, 19-23 June 2017, Bolyai Institute, University of Szeged, Hungary. Principal speaker at 49th Winter School in Abstract Analysis, Mílové, January, 2022.

Grants in Czech Republic

- "Mathematical Formalism of Quantum Theory (Operator Algebras and Ordered Structures with Orthocomplementation), Grant Agency of Czech Republic, 202/96/0117 (1996-1998), (principal investigator).
- "Operator Algebras, Orthomodular Structures and Noncommutative Measure Theory", Grant Agency of Czech Republic, no. 201/00/0331 (2000-2002), (principal investigator).
- "Noncommutative Measure Theory", Grant Agency of Czech Republic, no. 201/03/0455 (2003-2005), (principal investigator).
- "Algebraic and Measure Theoretic Aspects of Quantum Structures", Grant Agency of Czech Republic, no. 201/07/1051 (2007-2009), (principal investigator).
- "Topological and Geometric Properties of Banach Spaces and Operator Algebras", Grant Agency of Czech Republic, no. P201/12/0290 2012-2016, (co-investigator, jointly with MFF UK and MÚ AV ČR).
- "Topological and Geometric Properties of Banach Spaces and Operator Algebras II", no. 17-00941S (2017-2019), (co-investigator, jointly with MFF UK and MÚ AV ČR).

Project and stays abroad

- 1993: Department of Mathematics, Reading University, UK (3 months); E.C. research fellow, (collaboration with L.J.Bunce and J.D.M.Wright).
- 1996 – 1997: Mathematical Institute, Erlangen University, Germany (14 months), von Humboldt Research Fellow (collaboration with D.Koelzow).
- 1997: Department of Mathematics, Reading University, UK, (1 month), von Humboldt Research Fellow.
- 2000: Mathematical Institute, Erlangen University, Germany (4 months), von Humboldt Research Fellow.
- 2003: Mathematical Institute, Erlangen University, Germany (3 months), von Humboldt Research Fellow.
- 2006 – 2019: Series of regular research and Erasmus teaching stays at Department of Mathematics, University of Malta, Malta. (Overall 9 months)
- July 2014, July 2016: Harbin Institute of Technology, Department of Mathematics, China (Visiting professor). (Two months).
- Collaborant in the project "Geometry and Operators in Banach algebras and spaces", University of Murcia, Granada, Valencia. Spanish State Programme for Promoting Science-Technical Research and its Transfer (since 2021).

Short research stays and collaboration: Department of Mathematics, University of Trieste, Italy, (1999, 2001), Department of Mathematics, University of Vienna (2002), Department of Mathematics, Denver University, USA (2004), Department of Mathematics, University of Aberdeen (2006), Mathematical Institute University of Debrecen (2010), Mathematical Institute, University of Erlangen, (2005, 2011), Department of Mathematics, Seoul University (2014), Department of Mathematics, Radboud University, Nijmegen (2016), Mathematical Institute, Technical University in Budapest (2017), Bolyai Institute of Mathematics, Szeged, Hungary (2017, 2019).

Students

- E.Chetcuti (University of Malta) Thesis: Noncommutative Measure Theory (partial supervision) (2005).
- M.Bohata (Czech Technical University): Thesis: Techniques of Operator Algebras in Quantum Structures (2013).

Awards

- 1995: Prize of the dean FEL ČVUT for outstanding research results.
- 2001: "Prize for Scientific Achievement" awarded by the International Quantum Structure Association for the results in functional analysis and foundations of physics.
- 2004: Prize of the rector ČVUT for prestige publication of VUT in 2003: J.Hamhalter, Quantum Measure Theory, Dordrecht, Boston, London (2003).
- 2013: Prize of the dean of FEL ČVUT for prestigious Ph.D. dissertation (supervisor).

Further activities and service to community

- 1991 - reviewer of the Zentralblatt für Mathematik.
- 1991 - reviewer of the Mathematical Reviews.
- 1991 - member of American Mathematical Society.
- 1992 - member of International Quantum Structure Association.
- 1994: member of the Organizing Committee of the conference: Quantum Structures, Prague, 1994.
- 2012 - present member of the Scientific Board of the conference Quantum Structures 2012, Cagliari, Italy, July 2012.
- 2001 - 2004: member of the Nominating Committee of the International Quantum Structure Association.
- 2012 - present, Committee for Birkhoff-von Neumann Prize, International Quantum Structure Association.
- 2006 - 2008: member of the Council of the International Quantum Structure Association.
- 2011 - 2016 member of the Scientific Board of the Institute of Mathematics of the Czech Academy of Sciences.
- 2017 - 2021 member of the Supervisory Board of the Institute of Mathematics of the Czech Academy of Sciences.
- 2012 - present, member of the Committee for Birkhoff-von Neumann Prize.
- 2015 - present: Editor of Annals of Functional Analysis.
- Referee for various journals, doctoral thesis, promotion committees.