Curriculum Vitae

Name: **Libor Behounek**

Date: **2024, July 24**

A. Contact Data

Academic Address:
Institute for Research and Application of Fuzzy Modeling, CE IT4Innovations
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Citizenship:
Czech Republic, European Union

B. Research Experience

Employment:

2012—
University of Ostrava, Institute for Research and Applications of Fuzzy Modeling, CE IT4Innovations
Researcher 2015—
Postdoctoral fellow 2012–2015

2003–2015
Academy of Sciences of the Czech Republic, Institute of Computer Science
Part-time researcher 2012–2015
Full-time researcher 2010–2012
Full-time graduate student researcher 2005–2009
Part-time graduate student researcher 2003–2004

2011–2012
Vienna University of Technology
Postdoctoral project assistant
Faculty of Mathematics and Geoinformatics, Institute of Discrete Mathematics and Geometry (Aug 2011 – Feb 2012)
Faculty of Informatics, Institute of Computer Languages (Mar–Apr 2012)

2000–2001
Academy of Sciences of the Czech Republic, Institute of Mathematics
Contractual student research assistant (supervisor: A. Sochor)

C. Awards

2010 Antonin Svoboda Prize of the Czech Society for Cybernetics and Informatics (CSKI) for the best PhD thesis in computer science defended in Czechia in 2009

2007 Distinguished Student Paper Award at the 5th Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT)

2005 Best Paper Award at the XI International Fuzzy Systems Association (IFSA) World Congress

2004–2008: 1st (2008) and 2nd (2004, 2007) Best Presentation Award at the graduate-student workshop Doktorandske dny of the Institute of Computer Science AS CR

Citations (as of March 2024, excluding self-citations)

	Number of citations	*Hirsch index*
WoS	302	10
Scopus	386	9

D. Grants

Principal co-investigator

2022–(expected: 2024)
Metamathematics of substructural modal logics
Standard project, jointly with the Institute of Computer Science of the Czech Academy of Sciences (principal investigator P. Cintula)
Czech Science Foundation (GACR), No. 22–01137S
University of Ostrava, Institute for Research and Applications of Fuzzy Modeling

Fellowships and single-researcher projects

2012–2015
Strengthening research teams at the University of Ostrava
Postdoctoral fellowship holder
Project CZ.1.07/2.3.00/30.0010 of the European Regional Development Fund, Operational Programme Education for Competitiveness
University of Ostrava, Institute for Research and Applications of Fuzzy Modeling

2010–2012
Logic-based fuzzy mathematics
Postdoctoral single-researcher project 2010–2012
Czech Science Foundation (GACR), No. P103/10/P234
Academy of Sciences of the Czech Republic, Institute of Computer Science

2006 (Feb–May)
Uncertain reasoning
Marie Curie Early Stage Training short-term fellowship
Program *MathLogAps* (Mathematical Logic and Its Applications)
University of Manchester, School of Mathematics, supervisor Jeff B. Paris

Grant-team membership

(Participation in internal university projects and bilateral projects with foreign institutions not listed; for research stays financed by such projects see *Stays abroad* below.)

2020–2022
Fuzzy relational structures in approximate reasoning
Research grant, principal investigator M. Stepnicka
Czech Science Foundation (GACR), No. 20–07851S
University of Ostrava, CE IT4Innvovations, Institute for Research and Applications of Fuzzy Modeling

2016–2018
Fuzzy partial logic
Research grant, principal investigator V. Novak
Czech Science Foundation (GACR), No. 16–19170S
University of Ostrava, CE IT4Innvovations, Institute for Research and Applications of Fuzzy Modeling

2012–2014
A multivalued approach to optima and equilibria in economics
Research grant, principal investigators T. Kroupa, P. Cintula
Czech Science Foundation (GACR), No. P402/12/1309
Academy of Sciences of the Czech Republic, Institute of Computer Science

2010–2014
Mathematical fuzzy logic in computer science
Research grant 2010–2016, principal investigators P. Hajek, P. Cintula
Czech Science Foundation (GACR), No. P202/10/1826
Academy of Sciences of the Czech Republic, Institute of Computer Science

2011–2012
Fuzzy logic: from mathematics to medical applications
Research project 2008–2012, principal investigator A. Ciabattoni
Vienna Science and Technology Fund (WWTF), No. MA07–016
Vienna University of Technology, Faculty of Mathematics and Geoinformation, Institute of Discrete Mathematics and Geometry

2008–2012

Logical models of reasoning with vague information
Research project 2008–2011, principal investigators: C. Fermueller, L. Godo, P. Hajek
European Science Foundation (ESF), Scheme EUROCORES (European Collaborative Research), Program LogICCC (*Modelling Intelligent Interaction—Logic in the Humanities, Social and Computational Sciences*), Project FP006 LoMoReVI, consisting of 3 grants for participating teams in Vienna, Barcelona, and Prague
Team member of 2 constituent projects:
2008–2011: Czech Science Foundation (GACR) grant ICC/08/E018 *Fuzzy logic as a basis for a common framework of vague reasoning,* Academy of Sciences of the Czech Republic, Institute of Computer Science
2012: Austrian Science Fund (FWF) grant No. I143–G15 *LogICCC—Contextualism, supervaluation, and fuzzy logic,* Vienna University of Technology, Faculty of Informatics, Institute of Computer Languages

2007–2010

Dynamic formal systems
Research grant, principal investigators O. Majer, P. Cintula, E. Jerabek
Grant Agency of the Academy of Sciences of the Czech Republic, No. IAA900090703
Academy of Sciences of the Czech Republic, Institute of Computer Science

2005–2009

Methods for intelligent systems and their applications in data-mining and natural language processing
Research grant, principal investigators J. Sima, M. Platek
Information Society Programme, No. 1ET100300517
Academy of Sciences of the Czech Republic, Institute of Computer Science
Final report assessment: Successful with excellent results

2005–2009

Mathematical foundation of inference and decision under uncertainty
Research grant, principal investigator P. Hajek
Grant Agency of the Academy of Sciences of the Czech Republic, No. A100300503
Academy of Sciences of the Czech Republic, Institute of Computer Science

2005–2007

Formal theory of mathematical structures with vagueness
Junior research grant, principal investigators P. Cintula, T. Kroupa
Grant Agency of the Academy of Sciences of the Czech Republic, No. B100300502
Academy of Sciences of the Czech Republic, Institute of Computer Science
Final report assessment: Successful with excellent results

2003–2006

Logical foundations of semantics and knowledge representation
Graduate student training project 2003–2007, principal supervisors: P. Jirku, V. Kolman, J. Peregrin, M. Duzi
Czech Science Foundation, No. 401/03/H047
Charles University in Prague, Faculty of Arts

2003–2004

Mathematical foundations of inference under vagueness and uncertainty
Research grant 2002–2004, principal investigator P. Hajek
Grant Agency of the Academy of Sciences of the Czech Republic, No. A1030004
Academy of Sciences of the Czech Republic, Institute of Computer Science

E. Education

2002–2009: PhD, Charles University in Prague, Faculty of Arts, Department of Logic
Subject: Logic
Advisors: Petr Jirku, Petr Hajek
Thesis: Logical foundations of fuzzy mathematics

1996–2002: Master's degree (Mgr.), Charles University in Prague, Faculty of Arts
Subject: Logic (major), Computational linguistics (minor)
Thesis: Set theory over Goedel logic

F. Publications

For a more detailed list, including minor items and papers in other languages, see http://www.behounek.online/logic#papers

Journal papers

Badia G., Behounek L., Cintula P., Tedder A.: Relevant consequence relations: An invitation. *The Review of Symbolic Logic,* doi: 10.1017/S1755020323000205 (2023).

Behounek L., Dankova M.: Aggregation operators with undefined inputs or outputs. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems* 30: 19–41 (2022).

Behounek L., Majer O.: A graded semantics for counterfactuals. *Synthese* 199: 11963–11994 (2021).

Behounek L., Dvorak A.: Fuzzy relational modalities admitting truth-valueless propositions. *Fuzzy Sets and Systems* 388: 38–55 (2020).

Behounek L., Dankova M.: Variable-domain fuzzy sets—Part II: Apparatus. *Fuzzy Sets and Systems* 380: 19–43 (2020).

Behounek L., Dankova M.: Variable-domain fuzzy sets—Part I: Representation. *Fuzzy Sets and Systems* 380: 1–18 (2020).

Stepnicka M., Cao T.H.N., Behounek L., Burda M., Dolny A.: Missing values and dragonfly operations in fuzzy relational compositions. *International Journal of Approximate Reasoning* 113: 149–170 (2019).

Behounek L., Majer O.: Fuzzy intensional semantics. *Journal of Applied Non-Classical Logic* 28 (4): 348–388 (2018).

Behounek L.: A minimalistic many-valued theory of types. *Journal of Logic and Computation* 27 (5): 1307–1332 (2017).

Behounek L.: Maxima and minima in fuzzified linear orderings. *Fuzzy Sets and Systems* 289: 82–93 (2016).

Behounek L., Cintula P., Fermuller C., Kroupa T.: Representing strategic games and their equilibria in many-valued logics. *Logic Journal of the IGPL* 24(3): 238–267 (2016)

Behounek L., Bodenhofer U., Cintula P., Saminger-Platz, Sarkoci P.: Graded dominance and related graded properties of fuzzy connectives. *Fuzzy Sets and Systems* 262: 78–101 (2015).

Behounek L.: Graded properties of unary and binary fuzzy connectives. *Fuzzy Sets and Systems* 202: 1–41 (2012).

Behounek L., Dankova M.: Relational compositions in Fuzzy Class Theory. *Fuzzy Sets and Systems* 160 (8) 1005–1036 (2009).

Behounek L., Bodenhofer U., Cintula P.: Relations in Fuzzy Class Theory: Initial steps. *Fuzzy Sets and Systems* 159 (14): 1729–1772 (2008).

Behounek L.: On the difference between traditional and deductive fuzzy logic. *Fuzzy Sets and Systems* 159 (10): 1153–1164 (2008).

Behounek L., Cintula P.: From fuzzy logic to fuzzy mathematics: a methodological manifesto. *Fuzzy Sets and Systems* 157 (5): 642–646 (2006).

Behounek L., Cintula P.: Fuzzy logic as the logic of chains. *Fuzzy Sets and Systems* 157 (5): 604–610 (2006).

Behounek L., Cintula P.: Fuzzy class theory. *Fuzzy Sets and Systems* 154 (1): 34–55 (2005).

Behounek L.: Fuzzification of Groenendijk–Stokhof propositional erotetic logic. *Logique et Analyse* 47 (185–188): 167–188 (2004).

Papers in edited volumes and conference proceedings

Behounek L., Dankova M., Dvorak A.: Free quantification in four-valued and fuzzy bilattice-valued logics. In V.-N. Hyunh et al. (eds.): *Integrated Uncertainty in Knowledge Modelling and Decision Making (10th Int. Symp., IUKM 2023, Kanazawa, Japan, November 2–4, 2023, Proceedings, Part I)*, vol. 14375 of *Lecture Notes in Computer Science*, pp. 15–26, Springer, 2023.

Behounek L., Dankova M.: Sup-T compositions of partial fuzzy relations. In R. Mesiar et al. (eds.): *Joint Proceedings of the 19th IFSA, the 12th EUSFLAT, and the 11th AGOP,* vol. 3 of *Atlantis Studies in Uncertainty Modelling,* pp. 24–31, Atlantis Press, 2021.

Behounek L., Dankova M.: Fuzzy neighborhood semantics for multi-agent probabilistic reasoning in games. In M.-J. Lesot et al.: *Information Processing and Management of Uncertainty in Knowledge-Based Systems (Proc. 18th Int. Conf. IPMU 2020, Part III)*, vol. 1239 of *Communications in Computer and Information Science*, pp. 680–693, Springer Nature, 2020.

Behounek L.: A degree-theoretic framework for feasible knowledge. In Sedlar I., Blicha M.: *The Logica Yearbook 2019*, pp. 1-15, College Publications, 2020.

Behounek L., Dvorak A.: Non-denoting terms in fuzzy logic: An initial exploration. In *Advances in Fuzzy Logic and Technology 2017: Proceedings of EUSFLAT 2017*, vol. 1, pp. 148–158, Springer, 2018.

Behounek L.: Determinate truth in fuzzy plurivaluationism. In P. Arazim, T. Lavicka (eds.): *The Logica Yearbook 2016,* pp. 1–15. College Publications, 2017.

Behounek L., Dankova M.: Towards fuzzy partial set theory. In J.P. Carvalho et al. (eds.): *Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU 2016),* Part II, *Communications in Computer and Information Science* 611, pp. 482–494, Springer, 2016.

Behounek L., Novak V.: Towards fuzzy partial logic. In *Proceedings of the IEEE 45th International Symposium on Multiple-Valued Logics,* pp. 139–144, Waterloo, Ontario, 2015.

Behounek L., Hanikova Z.: Set theory and arithmetic in fuzzy logic. In F. Montagna (ed.): *Petr Hajek on Mathematical Fuzzy Logic,* pp. 63-89. Series *Outstanding Contributions to Logic,* vol. 6, Springer 2015.

Behounek L.: In which sense is fuzzy logic a logic for vagueness? In T. Lukasiewicz, R. Penaloza, A.-Y. Turhan (eds.): *CEUR Workshop Proceedings Vol-1205: Logics for Reasoning about Preferences, Uncertainty, and Vagueness 2014,* pp. 26–38, 2014.

Behounek L., Cintula P., Hajek P.: Introduction to mathematical fuzzy logic. In P. Cintula, P. Hájek, C. Noguera (eds.): *Handbook of Mathematical Fuzzy Logic,* pp. 1–101, College Publications, 2011.

Behounek L., Majer O.: A semantics for counterfactuals based on fuzzy logic. In M. Pelis, V. Puncochar (eds.): *The Logica Yearbook 2010,* pp. 25–41. College Publications 2011.

Behounek L., Cintula P., Bodenhofer U., Saminger-Platz S., Sarkoci P.: On a graded notion of t-norm and dominance. In *Proceedings of the 40th IEEE International Symposium on Multiple-Valued Logics,* pp. 73–76, Barcelona 2010.

Behounek L.: Number-free mathematics in t-norm fuzzy logics. In J. Carvalho, D. Dubois, U. Kaymak, J. Sousa (eds.): *Proceedings of IFSA–EUSFLAT 2009,* pp. 449–454, Lisbon 2009.

Behounek L.: Fuzzy logics interpreted as logics of resources. In M. Pelis (ed.): *The Logica Yearbook 2008,* pp. 9–21, College Publications 2009.

Behounek L., Bodenhofer U., Cintula P.: Valverde-style representation results in a graded framework. In M. Stepnicka, V. Novak, U. Bodenhofer (eds.): *New Dimensions in Fuzzy Logic and Related Technologies: Proceedings of the 5th Eusflat Conference,* vol. I, pp. 153–160, University of Ostrava 2007.

Behounek L., Kroupa T.: Interior-based topology in Fuzzy Class Theory. In M. Stepnicka, V. Novak, U. Bodenhofer (eds.): *New Dimensions in Fuzzy Logic and Related Technologies: Proceedings of the 5th Eusflat Conference,* vol. I, pp. 145–151, University of Ostrava 2007.

Behounek L., Cintula P.: Features of mathematical theories in formal fuzzy logic. In P. Melin et al. (eds.): *Foundations of Fuzzy Logic and Soft Computing,* pp. 523–532. Lecture Notes in Artificial Intelligence 4529 (IFSA 2007), Springer 2007.

Behounek L., Kroupa T.: Topology in Fuzzy Class Theory: Basic notions. In P. Melin et al. (eds.): *Foundations of Fuzzy Logic and Soft Computing,* pp. 513–522. Lecture Notes in Artificial Intelligence 4529 (IFSA 2007), Springer 2007.

Behounek L.: Extensionality in graded properties of fuzzy relations. In *Proceedings of the Eleventh International Conference IPMU 2006,* pp. 1604–1611. Edition EDK, Paris 2006.

Behounek L.: Towards a formal theory of fuzzy Dedekind reals. In E. Montseny, P. Sobrevilla (eds.): *Proceedings of the Joint 4th Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT) and the 11th Rencontres Francophones sur la Logique Floue et ses Applications (LFA), Barcelona, Spain, September 7–9, 2005,* pp. 949–954. Barcelona 2005.

Behounek L., Cintula P.: Fuzzy class theory as foundations for fuzzy mathematics. In Y. Liu, G. Chen, M. Ying (eds.): *Fuzzy Logic, Soft Computing and Computational Intelligence: Eleventh International Fuzzy Systems Association World Congress,* vol. 2, pp. 1233–1238. Tsinghua University Press & Springer, Beijing 2005.

Behounek L., Cintula P.: General logical formalism for fuzzy mathematics: Methodology and apparatus. In Y. Liu, G. Chen, M. Ying (eds.): *Fuzzy Logic, Soft Computing and Computational Intelligence: Eleventh International Fuzzy Systems Association World Congress,* vol. 2, pp. 1227–1232. Tsinghua University Press & Springer, Beijing 2005.

Behounek L.: Axiomatic fuzzy set theories. In P. Jirku and K. Bendova (eds.): *Miscellanea Logica V* (pp. 31–43). Karolinum Press, Prague 2003.

G. Papers Presented at Conferences

Plenary and invited lectures, tutorials

A Vopenka-style principle for fuzzy mathematics (invited lecture)
Czech Gathering of Logicians, Prague, Czechia, 2022

Some non-mainstream uses of fuzzy logic (invited lecture)
39th Linz Seminar on Fuzzy Set Theory, Linz, Austria, 2022

Making the domains of fuzzy sets explicit (plenary lecture)
The 16th International Conference on Fuzzy Set Theory and Applications (FSTA), Liptovsky Jan, Slovakia, 2022

On the connexivity of fuzzy counterfactuals (invited lecture)
Trends in Logic XXI, Bochum, Germany, 2021

Formal calculi of fuzzy relations (tutorial)
2nd European Summer School on Fuzzy Logic and Applications (SFLA), Celadna, Czechia, 2016

Introduction to multiple-valued logics (tutorial)
International Student Conference on Applied Mathematics and Informatics (ISCAMI), Malenovice, Czech Republic, 2014

Mathematical fuzzy logic (tutorial, jointly with P. Cintula)
4nd World School on Universal Logic, Rio de Janeiro, Brazil, 2013

Fuzzy logics among substructural logics (tutorial)
2nd World School on Universal Logic, Xi'an, China, 2007

The apparatus of fuzzy class theory (plenary lecture, jointly with P. Cintula)
VIII International Conference on Fuzzy Set Theory and Applications (FSTA), Liptovsky Jan, Slovakia, 2006

Kurt Goedel – zivot, vysledky a jejich vyznam (Czech, "Kurt Goedel—his life, his results and their significance", plenary lecture)
Kognice a umely zivot VI (Czech, "Cognition and Artificial Life VI"), Trest, Czechia, 2006

Contributed papers (selection)

Precompact fuzzy indistinguishability relations: A model of bounded discernment in similarity-based reasoning
10th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU), Lisbon, 2024

On the lottery-style paradoxes in positive free logics
Kurt Gödel Day & Czech Gathering of Logicians, Brno, 2024

Free quantification in four-valued and fuzzy bilattice-valued logics (with M. Dankova and A. Dvorak)
10th International Symposium on Integrated Uncertainty in Knowledge Modelling and Decision Making (IUKM), Kanazawa, 2023

A bilattice-valued free logic with graded gaps and gluts (with A. Dvorak)
17th International Congress on Logic, Philosophy and Methodology of Science and Technology (CLMPST), Buenos Aires, 2023

Free logic admitting truth-value gaps and gluts (with A. Dvorak)
Logica XXXVI, Tepla, 2023

The Bandler–Kohout product of fuzzy relations with undefined membership degrees (with M. Dankova)
9th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU), Milan, 2022

Do these degrees really go to eleven?
Kurt Gödel Day & Czech Gathering of Logicians, Brno, 2021

A many-valued semantics for feasible knowledge
The 8th International Workshop on Many-Valued Logic (ManyVal), Bucharest, 2019

A probabilistic semantics for unknown fuzzy degrees with Monte Carlo approximation
The 11th Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT), Prague, 2019

Non-monotonic abstract consequence relations
Logic Colloquium, Prague, 2019

A formalism for resource-sensitive epistemic logic
16th International Congress on Logic, Philosophy and Methodology of Science and Technology (CLMPST), Prague, 2019

A degree-theoretic framework for feasible knowledge
Logica XXXIII, Hejnice, 2019

Partial fuzzy modal logic with a crisp and total accessibility relation
Logic, Algebra and Truth Degrees, Bern, 2018

Extending aggregation functions for undefined inputs (with M. Dankova)
ISAS 2018: International Symposium on Aggregation and Structures, Valladolid, Spain, 2018

Hajek-style modalities in fuzzy intensional semantics
Beauty of Logic 2018, Prague, 2018

A free semantics for fuzzy logic
Non-Classical Modal and Predicate Logics (9th WOLC: NCMPL 2017), Guangzhou, 2017

Free quantification in fuzzy logic
The Third Israeli Workshop on Non-Classical Logics and Their Applications (Isralog '17), Haifa, 2017

On the interpretation of undefined values in partial fuzzy logic
Symposia on Mathematical Techniques Applied to Data Analysis and Processing (SMATAD), Fuengirola, 2017

Towards predicate partial fuzzy logic
Logic, Algebra and Truth Degrees, Phalaborwa, 2016

Determinate truth in the fuzzy plurivaluationistic account of vagueness
Logica XXX, Hejnice, 2016

Fuzzy solutions to classical problems
Frontiers of Non-Classicality, Auckland, 2016

Towards fuzzy partial logic of the first and higher orders (with V. Novak)
Logic Colloquium, Helsinki, 2015

Fuzzy partial logic: combining graduality and undefinedness (with V. Novak)
Logica XXIX, Hejnice, 2015

Towards fuzzy partial logic (with V. Novak)
IEEE 45th International Symposium on Multiple-Valued Logics (ISMVL), Waterloo, Ontario, 2015

Nash equilibria in a class of continuous games over rational Lukasiewicz logic (with P. Cintula and T. Kroupa)
Israeli Workshop on Non-Classical Logics and Their Applications (Isralog), Haifa, 2014

In which sense is fuzzy logic a logic for vagueness?
First Workshop on Logics for Reasoning about Preferences, Uncertainty, and Vagueness (PRUV 2014, part of Vienna Summer of Logic), Vienna, 2014

Church-style type theories over finitary weakly implicative logics,
Logic, Algebra and Truth Degrees (part of Vienna Summer of Logic), Vienna, 2014

A ground many-valued type theory and its extensions
35th Linz Seminar on Fuzzy Set Theory, Linz, 2014

The global, the local and the ugly (with P. Cintula)
Logic: Between Semantics and Proof Theory, Tel Aviv, 2012

Introspection of vague knowledge in fuzzy epistemic logic
Non-Classical Logics: Theory and Applications V, Torun, 2012

Infinitesimal calculus over semilinear contraction-free logics
Logic Colloquium, Manchester, 2012

The logical background of fuzzy plurivaluationism
Logica XXVI, Hejnice, 2012

Plurivaluationistic models of vagueness in logic-based fuzzy mathematics
Eleventh International Conference on Fuzzy Sets Theory and Its Applications (FSTA), Liptovsky Jan, 2012

Naive set theories over the logic IMTL
Asian Logic Conference, Wellington, 2011

Fuzzy set theories with naive comprehension
Non-Classical Modal and Predicate Logics, Guangzhou, 2011

Fuzzy logics as the logics of linearly decomposable resources
14th Congress of Logic, Methodology and Philosophy of Science, Nancy, 2011

A fuzzy semantics of the feasible knowledge
Dialogues, Inference, and Proof—Logical and Empirical Perspectives, Vienna, 2010

Formal fuzzy semantics for (crisp or fuzzy) counterfactuals (with O. Majer)
Logic, Reasoning and Rationality, Ghent, 2010

A degree-theoretical solution to the logical omniscience paradox
Epistemic Aspects of Many-Valued Logics, Prague, 2010

Semantics of counterfactuals in higher-order fuzzy logic (with O. Majer)
Logic, Algebra and Truth Degrees, Prague, 2010

A semantics for counterfactuals based on formal fuzzy logic (with O. Majer)
Logica XXIV, Hejnice, 2010

On a graded notion of t-norm and dominance (with U. Bodenhofer, P. Cintula, S. Saminger-Platz, and P. Sarkoci)
IEEE 40th International Symposium on Multiple-Valued Logics (ISMVL), Barcelona, 2010

Features of axiomatic theories in contraction-free logics (with P. Cintula)
3rd World Congress on Universal Logic, Lisbon, 2010

Extending Cantor–Lukasiewicz set theory with classes
31st Linz Seminar on Fuzzy Set Theory, Linz, 2010

Graded properties of t-norms (with U. Bodenhofer, P. Cintula, S. Saminger-Platz and P. Sarkoci)
X International Conference on Fuzzy Sets Theory and Its Applications (FSTA), Liptovsky Jan, 2010

Number-free mathematics based on t-norm fuzzy logic
IFSA World Congress and EUSFLAT Conference, Lisbon, 2009

Infinitesimal calculus based on a fuzzy notion of infinitesimal
Non-Classical Mathematics, Hejnice, 2009

Axiomatization of mathematical and physical theories in t-norm logics
Trends in Logic VI: Space, Time and Quanta, Brussels, 2008

Set theory over Goedel logic revisited
Logic, Algebra and Truth Degrees, Siena, 2008

Modeling the costs of programs by fuzzy dynamic logic (with M. Bilkova and P. Cintula)
6th European Congress of Analytic Philosophy, Krakow, 2008

Fuzzy logics interpreted as logics of resources
Logica XXII, Hejnice, 2008

Graded dominance (with U. Bodenhofer, P. Cintula, and S. Saminger-Platz)
29th Linz Seminar on Fuzzy Set Theory, Linz, 2008

Continuous relations over topological spaces in Fuzzy Class Theory (with T. Kroupa)
29th Linz Seminar on Fuzzy Set Theory, Linz, 2008

Interior-based topology in Fuzzy Class Theory (with T. Kroupa)
5th Conference of European Society for Fuzzy Logic and Technology (EUSFLAT), Ostrava, 2007

Traditional vs. deductive fuzzy logic
13th International Congress of Logic, Methodology and Philosophy of Science (LMPS), Beijing, 2007

Multiplicative quantifiers in fuzzy and substructural logics (with P. Cintula and R. Horcik)
Logic Colloquium, Wroclaw, 2007

Exponentials and multiplicative quantifiers in fuzzy logic (with P. Cintula and R. Horcik)
Trends in Logic V: Many-Valued Logic and Cognition, Guangzhou, 2007

Topology in Fuzzy Class Theory: Basic notions (with T. Kroupa)
XII International Fuzzy Systems Association (IFSA) World Congress, Cancun, 2007

Dubois and Prade's fuzzy elements: a challenge for formal fuzzy logic
The Logic of Soft Computing V and 5th Workshop of ERCIM Working Group on Soft Computing, Malaga, 2006

A model of higher-order vagueness in higher-order fuzzy logic
Uncertainty: Reasoning about Probability and Vagueness, Prague, 2006

Fuzzy logics interpreted as expressing the cost of knowledge
Trends in Logic IV: Towards Mathematical Philosophy, Torun, 2006

An alternative justification of the axioms of fuzzy logics
Logic Colloquium, Nijmegen, 2006

Extensionality in graded properties of fuzzy relations
11th International Conference IPMU, Paris, 2006

Two notions of fuzzy lattice completion
The Logic of Soft Computing IV and 4th Workshop of ERCIM Working Group on Soft Computing, Ostrava, 2005

Towards a formal theory of fuzzy Dedekind reals
4th EUSFLAT and 11th LFA Joint Conference, Barcelona, 2005

Betting on fuzzy logic (with O. Majer)
Dutch Book Arguments, Prague, 2005

Fuzzy class theory as foundations for fuzzy mathematics (with P. Cintula)
XI International Fuzzy Systems Association (IFSA) World Congress, Beijing, 2005

A delimitation of fuzzy logics in the logical landscape (with P. Cintula)
XIX Logica, Hejnice, 2005

Fuzzy logics among weakly implicative logics (with P. Cintula)
1st World Congress on Universal Logic, Montreux, 2005

Relations in higher-order fuzzy logic (with P. Cintula and U. Bodenhofer)
XXVI Linz Seminar on Fuzzy Set Theory, Linz, 2005

Extensional set equalities over Goedel logic
Logic Colloquium, Turin, 2004

What is fuzzy logic? (with P. Cintula)
ERCIM Workshop on Soft Computing, Vienna, 2004

From fuzzy logic to fuzzy mathematics: A methodological manifesto (with P. Cintula)
The Challenge of Semantics, Vienna, 2004

Intensional semantics of fuzzy logics
Residuated Lattices and Many-Valued Logic, Patras, 2004

Class theory over LPi logic (with P. Cintula)
VII International Conference on Fuzzy Sets Theory and Its Applications (FSTA), Liptovsky Jan, 2004

Fuzzification of Groenendijk–Stokhof erotetic logic
VIII Flemish-Polish Workshop on Adaptive and Erotetic Logics and Their Application to the Philosophy of Science (VlaPoLo), Zielona Gora, 2003

On fuzzy set theory over Goedel logic
The Logic of Soft Computing III, Siena, 2003

H. Teaching

Courses

University of Ostrava, Faculty of Science
Mathematical logic and set theory
2023/2024 WT, 2022/2023 WT, 2019/2020 ST, 2018/19 ST, 2017/18 ST, 2016/17 ST (all jointly with M. Dankova);
2014/15 ST, 2013/14 ST, 2012/13 ST (all jointly with A. Dvorak and P. Murinova)
Theories of vagueness
2021/22 ST (jointly with P. Murinova)
Ordered algebraic structures
2016/17 WT, 2015/16 WT, 2014/15 WT (all jointly with M. Dyba and M. Holcapek);
2013/14 WT (jointly with I. Perfilieva and M. Stepnicka)
Mathematical logic
2014/15 ST, 2013/14 ST, 2012/13 ST (all jointly with A. Dvorak)

University of Ostrava, Faculty of Philosophy
Non-classical logics
2022/2023 ST, 2021/2022 ST (both jointly with A. Dvorak)

Vienna University of Technology, Faculty of Informatics
Advanced mathematical logic
2013/14 WT, 2011/12 WT

Charles University in Prague, Faculty of Philosophy and Arts
Category theory (from the perspective of logic)
2012/13 ST, 2009/10 WT, 2007/8 WT, 2005/6 WT
Logic from the perspective of category theory
2009/10 ST, 2007/8 ST
Mathematical fuzzy logic
2009/10 ST (jointly with P. Cintula and R. Horcik);
2006/7 WT (titled *Formal fuzzy logic*)

Thesis supervision

2016 Monika Raskova: *Set-theoretic concepts in Lukasiewicz three-valued logic*
Master thesis, University of Ostrava, Faculty of Science

2016 Petr Revay: *Formalization of the deducibility relation of propositional fuzzy logics*

Bc thesis, Charles University in Prague, Faculty of Philosophy and Arts

2014 Ondrej Luhan: *Systems of morphisms over Goedel fuzzy logic*
Master thesis, Charles University in Prague, Faculty of Philosophy and Arts

2009 Ondrej Luhan: *Categories of fuzzy sets*
Bc thesis, Charles University in Prague, Faculty of Philosophy and Arts

2006 Nelly Vostra: *Fuzzification of simple systems of deontic logic*
Master thesis, Charles University in Prague, Faculty of Philosophy and Arts

Coursebooks

L. Behounek, M. Dankova: *Mathematical Logic and Set Theory / Matematicka logika a teorie mnozin.* English/Czech bilingual coursebook (161 pp.). University of Ostrava 2020.

I. Other Professional Activity

Edited volumes

Behounek L., Bilkova M. (eds.): *Logica Yearbook 2004.* Filosofia, Prague 2005.

Behounek L. (ed.): *Logica Yearbook 2003.* Filosofia, Prague 2004.

Special issues

Logic Journal of the IGPL 21 (1): 1–125 (2013), "Non-Classical Mathematics" (edited jointly with G. Sambin and G. Restall)

Studia Logica 90 (3): 287–453 (2008), "Vagueness" (edited jointly with R. Keefe)

Fuzzy Sets and Systems 159 (14): 1727–1835 (2008), 160 (8): 1003–1004 (2009) "Formal methods for fuzzy mathematics, approximation and reasoning—Part I, II" (edited jointly with P. Cintula, V. Novak, and I. Perfilieva).

Program committees

Czech Gathering of Logicians, Ostrava 2023 (PC chair)
Non-Classical Modal and Predicate Logics (NCMPL), Bochum 2021 (PC co-chair)
IFSA–EUSFLAT 2021, Bratislava 2021 (area co-chair)

Czech Gathering of Logicians, Brno 2024
Beauty of Logic & Prague Gathering of Logicians, Prague 2018
Non-Classical Modal and Predicate Logics (NCMPL), Guangzhou 2017
3rd Israeli Workshop on Non-Classical Logics and Their Applications (Isralog), Haifa 2017
Israeli Workshop on Non-Classical Logics and Their Applications (Isralog), Haifa 2014

Non-Classical Modal and Predicate Logics (NCMPL), Guangzhou 2011
Non-Classical Mathematics, Hejnice 2009

Organizing committees

Czech Gathering of Logicians, Ostrava 2023

Uncertainty: Reasoning about Probability and Vagueness (*Prague International Colloquium*), Prague 2006

Special sessions

2023 *Substructural modal logics* (organized jointly with T. Flaminio)
17th Congress on Logic, Methodology and Philosophy of Science and Technology (CLMPST), Buenos Aires

2013 *Non-classical mathematics* (organized jointly with P. Cintula)
4th World Congress on Universal Logic, Rio de Janeiro

2010 *Non-classical mathematics* (organized jointly with P. Cintula)
3rd World Congress on Universal Logic, Lisbon

2010 *Mathematical fuzzy logic* (organized jointly with P. Cintula and C. Noguera)
X International Conference on Fuzzy Set Theory and Applications (FSTA), Liptovsky Jan

2007 *Formal fuzzy mathematics* (organized jointly with P. Cintula)
5th Conference of European Society for Fuzzy Logic and Technology (EUSFLAT), Ostrava

2006 *Logical foundations of fuzzy mathematics* (organized jointly with P. Cintula)
VIII International Conference on Fuzzy Set Theory and Applications (FSTA), Liptovsky Jan

Journal peer reviews

Afrika Matematika
Annals of Pure and Applied Logic
Archive for Mathematical Logic
Erkenntnis
Fundamenta Informaticae
Fuzzy Sets and Systems
IEEE Transactions on Fuzzy Systems
Information Sciences
International Journal of Approximate Reasoning
International Journal of General Systems
International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems
Iranian Journal of Science and Technology
Journal of Applied Logic
Journal of Computational Optimization in Economics and Finance

Journal of Logic and Computation
Kybernetika
Logic and Logical Philosophy
Logic Journal of the IGPL
Logique et Analyse
Neural Network World
Organon F
Review of Symbolic Logic
Reports on Mathematical Logic
Soft Computing
Studia Logica

Research stays

2019 Barcelona, 1 week
Institut d'Investigacio en Intel-ligencia Artificial, Spanish Scientific Research Council
Erasmus+

2012–2013 Vienna, 3 months
Faculty of Informatics, Vienna University of Technology
European Regional Development Fund project CZ.1.07/2.3.00/30.0010 „Strengthening research teams at the University of Ostrava"

2012 Vienna, 2 months
Faculty of Informatics, Vienna University of Technology
Austrian Science Fund (FWF) project FWF I143–G15 "LogICCC—Contextualism, supervaluation, and fuzzy logic"

2011–2012 Vienna, 6 months
Faculty of Mathematics and Geoinformatics, Vienna University of Technology
Vienna Science and Technology Fund (WWTF) project MA07–016 "Fuzzy logic: from mathematics to medical applications"

2010 Barcelona, 1 week
Institut d'Investigacio en Intel-ligencia Artificial, Spanish Scientific Research Council
Joint project of the Academy of Sciences of the Czech Republic and the Spanish Scientific Research Council (CSIC) "Fuzzy logic and modalities"

2009–2010 Kyoto, total 3 weeks
Kyoto University
Program Kontakt ASCR–JSPS, Project ME09110 of the Ministry of Education of the Czech Republic "Fuzzy set theory as a foundation of fuzzy mathematics"

2007–2008 Linz, total 7 weeks
Institute of Bioinformatics, Johannes Kepler University Linz
Program Kontakt / WTZ Project 6–07–17 / 2–2007 "Formal foundations of fuzzy preference modelling"

2007 Barcelona, 1 week
Institut d'Investigacio en Intel-ligencia Artificial, Spanish Scientific Research Council
Joint project of the Academy of Sciences of the Czech Republic and the Spanish Scientific Research Council (CSIC) "Fuzzy logic in the framework of abstract algebraic logic"

2006 Manchester, 3 months
Department of Logic, School of Mathematics, University of Manchester
Mathlogaps (Mathematical Logic and Its Applications) Marie Curie Early Stage Training Short-Term Fellowship, supervisor Jeff B. Paris

2005–2006 Vienna, total 3 weeks
Institute of Computer Languages, Vienna University of Technology
Program Kontakt / WTZ, Project Austria No. 2005–15 "Automated model building for fuzzy logic"

2005–2006 Linz, total 3 weeks
Institute for Knowledge-based Mathematical Systems, Johannes Kepler University
Information Society Programme, Project No. 1ET100300517

2005–2006 Barcelona, total 2 weeks
Institut d'Investigacio en Intel-ligencia Artificial, Spanish Scientific Research Council
Joint project of the Academy of Sciences of the Czech Republic and the Spanish Scientific Research Council (CSIC) "Theoretical investigations of fuzzy logic systems in the framework of substructural logics"

2005 Linz, 2 months
Institute for Knowledge-based Mathematical Systems, Johannes Kepler University
CEEPUS (Central European Exchange Program for University Studies) scholarship

2003–2004 Barcelona, total 1 month
Institut d'Investigacio en Intel-ligencia Artificial, Spanish Scientific Research Council
Joint project of the Academy of Sciences of the Czech Republic and the Spanish Scientific Research Council (CSIC)

Membership in academic administrative and advisory bodies

2023—
Evaluator for the Research, Development and Innovation Council, an advisory body of the Government of the Czech Republic
Appointed member of the body of evaluators of Czech research institutions

2022–2026 (expected)
Evaluation Panel P401 "Philosophy, Theology, Religious Studies" of the Czech Science Foundation
Appointed member of the evaluation panel

2024–2026 (expected), 2021–2023
Council of the Institute for Research and Applications of Fuzzy Modeling, University of Ostrava
Appointed member of the advisory body of the Head of the Institute

2010–2014
Academy Assembly of the Academy of Sciences of the Czech Republic
Elected representative of the Institute of Computer Science AS CR

Membership in professional organizations

JCMF (Union of Czech Mathematicians and Physicists), 1990—
CMS (Czech Mathematical Society), a branch of JCMF, 2005—

CSKI (Czech Society for Cybernetics and Informatics), 2005—

EUSFLAT (European Society for Fuzzy Logic and Technology), 2005, 2007–2009, 2019–2021, 2024
MathFuzzLog (Mathematical Fuzzy Logic), a working group of EUSFLAT, 2007—

Veda zije! (Czech citizens' association Science Is Alive!), 2009–2010

J. Language Competence

Language	Understanding	Speaking/Writing	Examinations
Czech	Native	Native	
Slovak	Native	Fluent	
English	Fluent	Fluent	University exam 2001
Russian	Good	Good	University exam 2000, 2004
Esperanto	Good	Good	
Polish	Good	Basic	
Latin	Basic	Basic	

K. Research Area

Specialization:
Substructural and many-valued logics
Mathematical fuzzy logic

Competence:
Non-classical logics
Foundations of mathematics
Formal semantics
Philosophy of vagueness
Logical analysis of natural language

General curriculum:

Mathematical logic

Computational linguistics

Logic-related areas of mathematics, philosophy, linguistics, and computer science (set theory, analytic philosophy, philosophy of language, recursion theory, computational complexity, generative and unification grammars, universal algebra, etc.)