

## ***CURRICULUM VITAE***

### ***Personal Details***

Name	Miroslav Haviar
Citizenship	Slovakia
Marital status	Married, 5 children

### ***Education and Qualification History***

MSc in Mathematics	Faculty of Mathematics and Physics, Comenius University, Bratislava, Slovakia, 1988 (with Prize of Minister of Education of Slovakia)
PhD in Mathematics	Faculty of Mathematics and Physics, Comenius University, Bratislava, Slovakia, 1993
Doc of Mathematics	Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovakia, 2002
Prof of Mathematics	Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovakia, 2017

### ***Employment History***

1993 - 1995	Assistant Professor	Pedagogic Faculty, Matej Bel University, Banská Bystrica, Slovakia
1995 - 2002	Research Associate	Pedagogic Faculty, Matej Bel University, Banská Bystrica, Slovakia
2003 - 2007	Associate Professor	Pedagogic Faculty, Matej Bel University, Banská Bystrica, Slovakia
2008 - 2017	Associate Professor	Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia
2011 - 2017	Associate Professor	Pedagogic Faculty, Catholic University, Ružomberok, Slovakia (part time)
2018 – present	Full Professor	Faculty of Natural Sciences, Matej Bel University, Banská Bystrica, Slovakia
2018 – June 2021	Full Professor	Pedagogic Faculty, Catholic University, Ružomberok, Slovakia (part time)

### ***Fellowships***

1993 - 1994 (9 months)	Visiting Fellow	University of Oxford, UK
1998 - 2000 (24 months)	Postdoctoral Research Fellow	La Trobe University Melbourne, Australia
2004 (2 months)	Honorary Associate Fellow	Institute for Advanced Study Melbourne, Australia

### ***Main research interests*** (MSC 2010)

- 03 Mathematical logic and foundations
- 05 Combinatorics (including Graph theory)
- 06 Order, lattices, ordered algebraic structures
- 08 General algebraic systems
- 11 Number theory
- 97 Mathematics education

### ***Research and teaching experience.***

I have been a member of different research teams. My previous collaboration with the research group of Prof. Davey in Melbourne (mainly during the two-year postdoctoral stay commenced in October 1998) and with prof. Priestley in Oxford (started already in 1993) proved to be particularly fruitful. My research collaborators come from several countries (Australia, Portugal, Slovakia, South Africa, UK).

My professional career including research and teaching started in August 1989 at the Faculty of Mathematics and Physics of Comenius University in Bratislava, Slovakia. From January 1993 I took a position at Matej Bel University in Banská Bystrica, Slovakia, where I worked as an Assistant Professor until 1995 and a Research Associate until 2002. I was an Associate Professor there between 2003 and 2017 and from 2018 I have been working at Matej Bel University as a full professor of Mathematics. I spent the academic year 1993/94 as a Visiting Scholar at the University of Oxford and the two-year period Oct 1998 - Oct 2000 as a Postdoctoral Research Fellow at the La Trobe University in Melbourne. Since 2011 till June 2021 I worked part time as an Associate Professor and from 2018 as a full professor of Mathematics at Catholic University in Ružomberok, which has been very close to my heart due to my catholic faith.

Since 2008 I have become an Editor of Algebra Universalis, which is the main journal in the field of Universal Algebra (the journal is now listed in the Current Contents database). Since 1990 I have given 85 conference and seminar talks. These included invited plenary lectures at international conferences in Lisbon (2003), Nashville (2007), Oxford (2011), Melbourne (2013) and Bratislava (2018). They also included invited seminar talks in Oxford (1993), Glasgow (1994), Olomouc (1997, 2010, 2014, 2016, 2017), Melbourne (1999, 2003, 2005, 2006), Lisbon (2004, 2008, 2013 and 2019) and Vienna (1994, 1996, 2008, 2013, 2017).

### ***Awards, scholarships, invited lectures***

1. Prize of Minister of Education for outstanding study results, 1988
2. Soros/Foreign and Commonwealth Office Scholarship at University of Oxford, Oxford, UK, October 1993 - June 1994
3. Price of Rector of Matej Bel University for research, 1996
4. Postdoctoral Research Fellowship at La Trobe University, Melbourne, Australia, October 1998 - October 2000
5. Invited speaker at the conference Lattices, Universal Algebra and Applications, Lisbon, Portugal, May, 2003
6. Oxford Colleges Hospitality Scheme at University of Oxford and Somerville College, Oxford, UK, July - August, 2003
7. Honorary Associate Fellowship at IAS of La Trobe University, Melbourne, Australia, October 2004 - December 2004
8. Plenary speaker at the Conference on Order, Algebra and Logics, Nashville, USA, June, 2007
9. Silver medal of Matej Bel University for research and grants, September, 2009

10. Invited speaker at the Workshop on Duality Theory, Mathematical Institute, University of Oxford, UK, August, 2011
11. Plenary speaker at the conference General Algebra and Its Applications (GAIA 2013), Melbourne, Australia, July 2013.
12. Invited speaker at the conference Arbeitstagung Allgemeine Algebra 2018, Comenius University, Bratislava, Slovakia, February 2018.

## ***Publications***

### **Published papers in peer reviewed scholarly journals**

- [1] **Haviar, Miroslav - Katriňák, Tibor:** Lattices whose congruence lattice is relative Stone. In: Acta Scientiarum Mathematicarum. - Vol. 51, No. 1-2 (1987), pp. 81-91
- [2] **Haviar, Miroslav:** Lattices whose congruence lattices satisfy Lee's identities. In: Demonstratio Mathematica. - Vol. 24, No. 1-2 (1991), pp. 247-261
- [3] **Chajda, Ivan - Haviar, Miroslav:** Induced pseudoorders. In: Acta Universitatis Palackianae Olomucensis, Facultas Rerum Naturalium - Mathematica. - Vol. 30, No. 1 (1991), pp. 9-16
- [4] **Haviar, Miroslav:** On affine completeness of distributive p-algebras. In: Glasgow Mathematical Journal. - Vol. 34, Part 3 (1992), pp. 365-368
- [5] **Haviar, Miroslav:** Affine complete algebras abstracting Kleene and Stone algebras. In: Acta Mathematica Universitatis Comenianae-New Series. - Vol. 62, No. 2 (1993), pp. 179-190
- [6] **Haviar, Miroslav:** On a certain construction of MS-algebras. In: Portugaliae Mathematica. - Vol. 51, Fasc. 1 (1994), pp. 71-83
- [7] **Haviar, Miroslav:** Affine complete Stone and Post algebras of order n. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 2 (1994), pp. 19-30
- [8] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** The syntax and semantics of entailment in duality theory. In: Journal of Symbolic Logic. - Vol. 60, No. 4 (1995), pp. 1087-1114
- [9] **Haviar, Miroslav - Ploščica, Miroslav:** Affine complete Stone algebras. In: Algebra Universalis. - Vol. 34, No. 3 (1995), pp. 355-365
- [10] **Haviar, Miroslav:** The study of affine completeness for quasi-modular double p-algebras. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 3 (1995), pp. 17-30
- [11] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** Endoprimal distributive lattices are endodualisable. In: Algebra Universalis. - Vol. 34, No. 3 (1995), pp. 444-453
- [12] **Haviar, Miroslav:** Affine complete algebras abstracting double Stone and Kleene algebras.

In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 4 (1996), pp. 39-52

- [13] **Haviar, Miroslav - Konôpka, Pavol - Priestley, Hilary A. - Wegener, Claudia B.:** Finitely generated free modular ortholattices I. In: International Journal of Theoretical Physics Vol. 36, No. 12 (1997), pp. 2639-2660
- [14] **Haviar, Miroslav - Kaarli, Kalle - Ploščica, Miroslav:** Affine completeness of Kleene algebras. In: Algebra Universalis. - Vol. 37, No. 4 (1997), pp. 477-490
- [15] **Haviar, Miroslav - Ploščica, Miroslav:** Affine completeness of Kleene algebras II. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 5 (1997), pp. 51-61
- [16] **Haviar, Miroslav - Konôpka, Pavol - Wegener, Claudia B.:** Finitely generated free modular ortholattices II. In: International Journal of Theoretical Physics – Vol. 36, No. 12 (1997), pp. 2661-2679
- [17] **Ploščica, Miroslav - Haviar, Miroslav:** On order-polynomial completeness of lattices. In: Algebra Universalis. - Vol. 39, No. 3-4 (1998), pp. 217-219
- [18] **Haviar, Miroslav - Priestley, Hilary A.:** A criterion for a finite endoprimal algebra to be endodualisable. In: Algebra Universalis - Vol. 42, No. 3 (1999), pp. 183-193
- [19] **Haviar, Miroslav - Priestley, Hilary A.:** Endodualisable and endoprimal finite double Stone algebras. In: Algebra Universalis. - Vol. 42, No. 1-2 (1999), pp. 107-130. Remark: Reprinted due to wrongly printed 1<sup>st</sup> version in: Algebra Universalis - Vol. 58, No. 2 (2008), pp. 203-228
- [20] **Haviar, Miroslav - Konôpka, Pavol:** Finitely generated free orthomodular lattices IV. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 7 (1999), pp. 13-29
- [21] **Davey, Brian A. - Haviar, Miroslav:** A schizophrenic operation which aids the efficient transfer of strong dualities. In: Houston Journal of Mathematics. - Vol. 26, No. 2 (2000), pp. 215-222
- [22] **Haviar, Miroslav - Konôpka, Pavol:** Finitely generated free orthomodular lattices III. In: International Journal of Theoretical Physics. - Vol. 39, No. 3 (2000), pp. 727-735
- [23] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** Kleene algebras: A case study of clones and dualities from endomorphisms. In: Acta Scientiarum Mathematicarum. - Vol. 67, No. 1-2 (2001), pp. 77-103
- [24] **Clark, David M. - Davey, Brian A. - Haviar, Miroslav - Pitkethly, Jane G. - Talukder, M. Rashed:** Standard topological quasi-varieties. In: Houston Journal of Mathematics - Vol. 29, No. 4 (2003), pp. 859-887
- [25] **Davey, Brian A. - Haviar, Miroslav:** Transferring optimal dualities: Theory and practice. In: Journal of the Australian Mathematical Society - Vol. 74, Part 3 (2003), pp. 393-420
- [26] **Davey, Brian A. - Haviar, Miroslav:** Applications of Priestley duality in transferring optimal dualities. In: Studia Logica - Vol. 78, No. 1-2 (2004), pp. 213-236

- [27] **Davey, Brian A. - Haviar, Miroslav - Willard, Ross:** Full does not imply strong, does it?  
In: Algebra Universalis - Vol. 54, No. 1 (2005), pp. 1-22
- [28] **Davey, Brian A. - Haviar, Miroslav - Willard, Ross:** Structural entailment.  
In: Algebra Universalis. - Vol. 54, No. 4 (2005), pp. 397- 416
- [29] **Haviar, Miroslav - Priestley, Hilary A.:** Canonical extensions of Stone and double Stone algebras: the natural way. In: Mathematica Slovaca - Vol. 56, No. 1 (2006), pp. 53-78
- [30] **Davey, Brian A. - Haviar, Miroslav - Niven, Todd:** When is a full duality strong?  
In: Houston Journal of Mathematics - Vol. 33, No. 1 (2007), pp. 1-22
- [31] **Davey, Brian A. - Haviar, Miroslav - Niven, Todd - Perkal, Narwin:** Full but not strong dualities at the finite level: Extending the realm. In: Algebra Universalis - Vol. 56, No. 1 (2007), pp. 37-56
- [32] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** Boolean topological distributive lattices and canonical extensions. In: Applied Categorical Structures - Vol. 15, No. 3 (2007), pp. 225-241
- [33] **Ploščica, Miroslav - Haviar, Miroslav:** Congruence-preserving functions on distributive lattices. In: Algebra Universalis - Vol. 59, No. 1-2 (2008), pp. 179-196
- [34] **Haviar, Miroslav - Maličský, Peter:** Superprimes and generalized Dirichlet theorem.  
In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 15 (2009), pp. 21-35
- [35] **Davey, Brian A. - Haviar, Miroslav - Pitkethly, Jane G.:** Using coloured ordered sets to study finite-level full dualities. In: Algebra Universalis - Vol. 64, No. 1-2 (2010), pp. 69-100
- [36] **Guffová, Daniela - Haviar, Miroslav:** Lattices with relative Stone congruence lattices II.  
In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 17 (2010) - pp. 41-55
- [37] **Davey, Brian A. - Gouveia, Maria Joao - Haviar, Miroslav - Priestley, Hilary A.:** Natural extensions and profinite completions of algebras. In: Algebra Universalis - Vol. 66, No. 3 (2011), pp. 205-241
- [38] **Davey, Brian A. - Gouveia, Maria Joao - Haviar, Miroslav - Priestley, Hilary A.:** Multisorted dualisability: change of base. In: Algebra Universalis - Vol. 66, No. 4 (2011), pp. 331-336
- [39] **Gouveia, Maria Joao - Haviar, Miroslav:** Transferral of entailment in duality theory: Dualisability. In: Czechoslovak Mathematical Journal - Vol. 61, No. 1 (2011), pp. 41-63
- [40] **Gouveia, Maria Joao - Haviar, Miroslav:** Transferral of entailment in duality theory II: Strong dualisability. In: Czechoslovak Mathematical Journal - Vol. 61, No. 2 (2011), pp. 401-417
- [41] **Badawy, Abd El-Mohsen - Guffová, Daniela - Haviar, Miroslav:** Triple constructions of decomposable MS-algebras. In: Acta Universitatis Palackianae Olomucensis, Facultas Rerum Naturalium. Mathematica - Vol. 51, No. 2 (2012), pp. 53-65
- [42] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** Natural dualities in partnership.

In: Applied Categorical Structures - Vol. 20, No. 6 (2012), pp. 583-602

- [43] **Davey, Brian A. - Haviar, Miroslav - Pitkethly, Jane G.:** Full dualisability is independent of the generating algebra. In: Algebra Universalis - Vol. 67, No. 3 (2012), pp. 257-272
- [44] **Haviar, Miroslav - Ivaška, Michal:** Conjecture on Dinitz Problem and improvement of Hrnčiar's result. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 21 (2013), pp. 43-53
- [45] **Craig, Andrew P. K. - Haviar, Miroslav - Priestley, Hilary A.:** A fresh perspective on canonical extensions for bounded lattices. In: Applied Categorical Structures - Vol. 21, No. 6 (2013), pp. 725-749
- [46] **Craig, Andrew P. K. - Haviar, Miroslav:** Reconciliation of approaches to the construction of canonical extensions of bounded lattices. In: Mathematica Slovaca - Vol. 64, No. 6 (2014), pp. 1335-1356
- [47] **Haviar, Alfonz - Haviar, Miroslav:** Weak subgroupoid lattices. In: Mathematica Slovaca - Vol. 64, No. 3 (2014), pp. 665-674
- [48] **Craig, Andrew P. K. - Gouveia, Maria Joao - Haviar, Miroslav:** TiRS graphs and TiRS frames: a new setting for duals of canonical extensions. In: Algebra Universalis - Vol. 74, No. 1-2 (2015), pp. 123-138
- [49] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** Piggyback dualities revisited. In: Algebra Universalis - Vol. 76, No. 2 (2016), pp. 245-285
- [50] **Davey, Brian A. - Haviar, Miroslav - Priestley, Hilary A.:** Bohr compactifications of algebras and structures. In: Appl. Categ. Structures - Vol. 25, No. 3 (2017), pp. 403-430
- [51] **Haviar, Miroslav:** On finitely generated free orthomodular lattices. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 26 (2018), pp. 27-57
- [52] **Haviar, Miroslav:** On selected developments in the theory of natural dualities. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 27 (2019), pp. 59-78
- [53] **Craig, Andrew P. K. - Davey, Brian A. - Haviar, Miroslav:** Expanding Belnap: dualities for a new class of default bilattices. In: Algebra Universalis (2020) 81:50, 2020 Springer Nature Switzerland AG. Available at <https://rdcu.be/b6ZHR>, an extended 40 pp. version available at arXiv:1808.09636.
- [54] **Badawy, Abd El-Mohsen - Haviar, Miroslav - Ploščica, Miroslav:** Congruence pairs of principal MS-algebras and perfect extensions. Dedicated to the memory of Professor Beloslav Riečan. In: Mathematica Slovaca - Vol. 70, No. 6 (2020), pp. 1275-1288.
- [55] **Kotúľová, Katarína - Haviar, Miroslav:** Recent developments on gracefulness of graphs. A survey complemented with chessboard representations. In: Acta Universitatis Matthiae Belii: Series Mathematics. - Vol. 28 (2020), pp. 39-65.
- [56] **Haviar, Miroslav – Kurtulík, Samuel:** A new class of graceful graphs: k-enriched fan graphs and their characterisations, In: CUBO, A Mathematical Journal - Vol. 23, No. 02 (2021),

pp. 313–331.

- [57] **Haviar, Miroslav - Ploščica, Miroslav:** Perfect extensions of de Morgan algebras. In: Algebra Universalis (accepted, to appear); available at <https://arxiv.org/pdf/1912.12891.pdf> .
- [58] **Craig, Andrew P. K. - Gouveia, Maria Joao - Haviar, Miroslav:** Canonical extensions of lattices are more than perfect. (In memory of Bjárni Jónsson). 16 pp. In: Algebra Universalis (submitted); arXiv 2001.04182; available at <https://arxiv.org/pdf/2001.04182.pdf> .
- [59] **Craig, Andrew P. K. - Davey, Brian A. - Haviar, Miroslav:** Expanding Belnap 2: the dual category in depth. 29 pp. In: Journal of the Australian Mathematical Society (submitted).

### Papers in reviewed conference proceedings

- [60] **Haviar, Miroslav, Katriňák, Tibor:** Semi-discrete lattices with  $(L_n)$ -congruence lattices. In: Contributions to General Algebra, Vol. 7 - Wien: Hölder-Pichler-Tempsky, 1991. - pp. 189-195. - ISBN 3-209-01380-2 [General Algebra 1990: Conference Vienna, 14.-17.6.1990]
- [61] **Haviar, Miroslav:** Construction and affine completeness of principal  $p$ -algebras. In: Tatra Mountains Mathematical Publications. - Vol. 5 (1995), pp. 217-228 [General Algebra and Ordered Sets 1993: Summer School. Liptovský Ján, 29.8.-5.9.1993]
- [62] **Guffová, Daniela - Haviar, Miroslav:** Lattices with relative Stone congruence lattices. In: Contributions to General Algebra, Vol. 19 - Klagenfurt: Verlag Johannes Heyn, 2010 – pp. 81-90- ISBN 978-3-7084-0407-3. [AAA 2010: Arbeitstagung Allgemeine Algebra: International Conference 79, Olomouc, 12.-14.2. 2010]

### Books

- [63] **Miroslav Haviar, Michal Ivaška:** Vertex labellings of simple graphs. Research and Exposition in Mathematics , Vol. 34, Heldermann Verlag [1<sup>st</sup> ed.] Lemgo (Germany), 2015 - 155 pp. ISBN 978-80-89238-14-9
- [64] **Miroslav Haviar, Pavel Klenovčan:** BASIC ALGEBRA for future teachers. (Revs. G. Jones, T. Zdráhal, R. Zimka), Belianum [1<sup>st</sup> ed.], Banská Bystrica, 2016 - xii, 329 pp. ISBN 978-80-557-1035-8
- [65] **Miroslav Haviar, Pavel Klenovčan:** BASIC ALGEBRA for future teachers. (Revs. V. Janiš, M. Papčo), Belianum [2nd ed.], Banská Bystrica, 2020 - xvi, 390 pp. ISBN 978-80-557-1746-3

### Book chapters

- [66] **Davey, Brian A. - Haviar, Miroslav:** Modified Priestley dualities as natural dualities. In: G. Grätzer, Lattice Theory: Foundation -Basel: Springer, 2011 - pp. 434-437 - ISBN 978-3-0348-0017-4

### Theses

- [67] **Haviar, Miroslav:** Algebras abstracting finite Stone algebras. Construction and affine completeness – 83 pp. PhD thesis, Comenius University, Bratislava, 1992

[68] **Haviar, Miroslav:** Three topics in algebra motivated by Boolean algebras – 154 pp.  
Habilitation thesis, Comenius University, Bratislava, 2001

### Lecture notes

[69] **Klenovčan, Pavel - Haviar, Alfonz - Haviar, Miroslav:** Introduction into the study of Mathematics. – 1st ed. - Banská Bystrica: Univerzita Mateja Bela, 1996. - 98 pp. (in Slovak) ISBN 80-8055-010-7

[70] **Haviar, Miroslav - Klenovčan, Pavel:** Algebra I: Algebraic structures. – 1st ed. – Banská Bystrica: Univerzita Mateja Bela, 1998. - 93 pp. (in Slovak). ISBN 80-8055-134-0

[71] **Haviar, Miroslav:** Algebra III : Linear algebra. – 1st ed. - Banská Bystrica: Univerzita Mateja Bela, 2001 – 92 pp. (in Slovak). ISBN 80-8055-493-5

### *Citations in monographs*

There are 35 citations on my research papers in the monographs:

- (1) G. Grätzer, General Lattice Theory, 2nd edition, Birkhäuser Verlag, BaselBoston-Berlin, 1998, ISBN 3-7643-5239-6 (Basel), ISBN 0-8176-5239-6 (Boston) - 13 citations
- (2) K. Kaarli and A.F. Pixley, Polynomial Completeness in Algebraic Systems, Chapman and Hall/CRC, New York-Washington, D.C., 2000, ISBN 1-58488-203-4 - 9 citations
- (3) A. Dvurečenskij and S. Pulmanová, New trends in Quantum Structures, Mathematics and Its Applications, Kluwer Academic Publishers, DordrechtBoston-London & Ister Science, Bratislava, 2000, ISBN 0-7923-6471-6 (Kluwer), ISBN 80-88683-23-8 (Ister) - 3 citations
- (4) G. Grätzer, Lattice Theory: Foundation, Birkhäuser, Springer Basel AG 2011, ISBN 978-3-0348-0017-4 - 10 citations

### *Other professional activities*

- (1) Editor of the international journal Algebra Universalis (since the end of 2008).
- (2) Editor-in-Chief of the international mathematical journal Acta Universitatis Mathaei Belii, series Mathematics (since the end of 2009).
- (3) Member of Working group for Mathematics and Statistics of Slovak Accreditation Committee (since 2006 till 2019).
- (4) The Chair of the international conferences 40th, 45<sup>th</sup>, 50th and 55th Summer Schools on Algebra 2002, 2007, 2012 and 2017.
- (5) The co-organizer of the Summer Schools on Algebraic Graph Theory 2014 and 2015.
- (6) Organizer of Mathematical colloquium at M. Bel University (since Oct 2008 till April 2014).
- (7) Member of Committee for Mathematics and Physics of Slovak grant agency VEGA (since 2016 till 2021).
- (8) Reviewer for the Mathematical Reviews (since 1995).
- (9) Member of Jesus College Oxford Association - Old Members (since 1994).
- (10) Member of Slovakian Mathematical Society.