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Date of birth: June 29, 1975
Place of birth: Klagenfurt, Austria.

Education

- 2006 **Habilitation in Mathematics**, *Universität Wien*.
Thesis A polynomial method for the enumeration of plane partitions and alternating sign matrices
External Referees David Bressoud, Dominique Foata, Charles Little, Peter Paule and Doron Zeilberger
Internal Referees Markus Fulmek, Christian Krattenthaler, Michael Schlosser and Liselotte Tschepen
- 2000 **Dr. rer. nat in Mathematics**, *Universität Wien*, passed with distinction.
Thesis Enumeration of perfect matchings: Rhombus tilings and Pfaffian graphs
Supervisors Christian Krattenthaler and Franz Rendl
- 1998 **Mag. rer. nat in Mathematics**, *Universität Wien*, passed with distinction.
Thesis Der Satz von Skolem, Mahler, Lech – ein Ergebnis über die Nullstellen linearer Rekursionsfolgen
Supervisor Johann Cigler
- 1993 – 1998 **Studies of “Mathematics”**, *Universität Wien*.
- 1993 **Matura**, *Ingeborg-Bachmann-Gymnasium*, Klagenfurt.

Academic Employment

- since 2011 **Assoziierte Professorin**, *Universität Wien*.
2009 **Visiting professor**, *Alpen-Adria-Universität Klagenfurt*.
2007 **Visiting professor**, *Alpen-Adria-Universität Klagenfurt*.
2004-2011 **Universitätsassistentin**, *Universität Wien*.
Permanent position since 2008
2002 **Visiting researcher**, *Universität Wien*.
2001 **Visiting scholar**, *Georgia Tech, MIT, Michigan State University*.

- 1999-2004 **Universitätsassistentin**, *Alpen-Adria-Universität Klagenfurt*.
1998-1999 **Research fellow**, *Universität Wien*.
1995-1999 **Teaching assistant**, *Universität Wien*.

Awards

- 2009 **START Award**, *Austrian Federal Ministry of Science and Research and Austrian Science Foundation FWF*, €1.2 Mill, The START Award is the most prestigious award for young researchers in Austria.

Research Grants

- 2010 – 2012 **Principal Investigator of the START project**, *Austrian Science Foundation (FWF)*; depending upon a midterm evaluation the grant can be extended for another three years.
2006 – 2011 **Co-Investigator of the National Research Network “Analytic Combinatorics and Probabilistic Number Theory”**, *Austrian Science Foundation (FWF)*.
2002 – 2005 **Co-Investigator of the European Research Network “Algebraic Combinatorics in Europe”**, *European Commission*.

Research interests

Combinatorics (enumerative, algebraic, bijective) and its relations to statistical physics and algebra, Graph Theory.

Publications in Peer-Reviewed Journals

- [1] I. Fischer, Enumeration of rhombus tilings which contain a fixed rhombus in the centre, *J. Combin. Theory Ser. A* 96 (2001), 31–88.
- [2] C.H.C. Little, F. Rendl and I. Fischer, Towards a characterisation of Pfaffian near bipartite graphs, *Discrete Math.* 244 (2002), 279–297.
- [3] I. Fischer and C.H.C. Little, A characterisation of Pfaffian near bipartite graphs, *J. Combin. Theory Ser. B* 82 (2001), 175–222.
- [4] I. Fischer, Moments of inertia associated with the lozenge tilings of a hexagon, *Sém. Lothar. Combin.* 45 (2000/01), Art. B45f, 14 pp.
- [5] I. Fischer, A symmetry theorem on a modified jeu de taquin, *European J. Combin.* 23 (2002), 929–936.
- [6] I. Fischer and C.H.C. Little, Even circuits of prescribed clockwise parity, *Electron. J. Combin.* 10 (2003), Article # R 45, 20 pages.
- [7] I. Fischer, A method for proving polynomial enumeration formulas, *J. Combin. Theory Ser. A* 111 (2005), 37 – 58.
- [8] I. Fischer, A method for proving polynomial enumerations formulas, extended abstract in the proceedings of the FPSAC’03.
- [9] I. Fischer, G. Gruber, F. Rendl and R. Sotirov, Computational experience with a bundle approach for semidefinite cutting plane relaxations of Max-Cut and Equipartition, *Math. Program. Ser. B.* 105 (2006), 451 – 469.

- [10] I. Fischer, Another refinement of the Bender-Knuth (ex-)Conjecture, *European J. Combin.* 27 (2006), 290 – 321.
- [11] I. Fischer, The number of monotone triangles with prescribed bottom row, *Adv. Appl. Math.* 37 (2006), no. 2, 249 – 267.
- [12] I. Fischer, The number of monotone triangles with prescribed bottom row, extended abstract in the proceedings of the FPSAC'05.
- [13] I. Fischer, A new proof of the refined alternating sign matrix theorem, *J. Combin. Theory Ser. A.* 114 (2007), no. 2, 253 – 264.
- [14] I. Fischer, An operator formula for the number of halved monotone triangles with prescribed bottom row, *J. Combin. Theory Ser. A.* 116 (2009), 515 – 538.
- [15] I. Fischer and D. Romik, More refined enumerations of alternating sign matrices, *Adv. Math.* 222 (2009), 2004 – 2035.
- [16] I. Fischer, The operator formula for monotone triangle – simplified proof and three generalizations, *J. Combin. Theory Ser. A.* 117 (2010), 1143 – 1157.
- [17] I. Fischer, Refined enumerations of alternating sign matrices: monotone (d, m) -trapezoids with prescribed top and bottom row, *J. Alg. Combin.* 33 (2011), 239 – 257.
- [18] I. Fischer, Linear relations of refined enumerations of alternating sign matrices, *J. Combin. Theory Ser. A.* 119 (2012), 556 – 578.
- [19] I. Fischer, Sequences of labeled trees related to Gelfand-Tsetlin patterns, *Adv. Appl. Math.* (accepted) arXiv:1104.0568v1.
- [20] I. Fischer and L. Riegler, Combinatorial reciprocity for monotone triangles, extended abstract in the proceedings of the FPSAC'12.

Preprints and Work in Progress

- [21] I. Fischer, A bijective proof of the hook-length formula for shifted standard tableaux, preprint, 47 pages, math.CO/0112261.
- [22] I. Fischer and L. Riegler, Combinatorial reciprocity for monotone triangles, preprint, 24 pages, arXiv:1111.2695v1.
- [23] I. Fischer, The number of integer points in rational polytopes is given by quasipolynomials in the delation parameters – an elementary approach, preprint, 32 pages.
- [24] I. Fischer and P. Nadeau, Fully Packed Loops in a triangle: matchings, paths and puzzles, in preparation.
- [25] I. Fischer and M. Kubitzke, Notes on the Serge product of two algebras, in preparation.

Supervision of Students and PostDocs

Supervision of five Bachelor's theses.

2011

Diploma students

2009 Liselotte Tschepen, "Counting integral points in polytopes".

2010 **Thomas Glatz**, “*Charakterisierung Pfaff'scher Graphen mittels verbotener Teilgraphen*”.

Doctoral students

since 2010 **Lukas Riegler**.

since 2012 **Sabine Beil**.

Postdoctoral fellows

2010 – 2011 **Matthieu Josuat-Vergès**, (*now CNRS*).

2010 – 2012 **Martina Kubitzke**, (*now Goethe Universität Frankfurt am Main*).

Selected Presentations

June 2000 10th **SIAM Conference on Discrete Mathematics**, Minneapolis.

October 2001 **Combinatorics Seminar**, Georgia Institute of Technology, invited talk.

December 2001 **Combinatorics Seminar**, Michigan State University, invited talk.

June 2003 15th **Conference on Formal Power Series and Algebraic Combinatorics**, Linköping University.

September 2003 **European Conference on Combinatorics, Graph Theory and Applications**, Prague.

May 2004 **Mathematisches Kolloquium**, Universität Wien, invited talk.

June 2005 **Second Joint Meeting of AMS, DMV and ÖMG**, Mainz, invited talk.

November 2005 **Universität zu Köln**, invited talk.

December 2005 **Colloquium on Discrete Mathematics**, Graz University of Technology, invited talk.

March 2006 **Technische Universität Berlin, Symposium Diskrete Mathematik 2006**, plenary talk.

April 2008 **Freie Universität Berlin, Hearing for a W2/W3 professorship**.

May 2009 **Tilburg University**, invited talk.

January 2010 **Joint Mathematical Conference CSASC 2010**, Prague, plenary talk.

June 2011 **23rd Annual International Conference on Formal Power Series and Algebraic Combinatorics**, Reykjavik, plenary talk.

January 2012 **Lecture to introduce me as an Assoz. Prof. at the Universität Wien**.

Teaching

I am active in teaching since 1999 at the Universities of Vienna and Klagenfurt.

Courses on Discrete Mathematics (2006), Combinatorics (2000, 2002, 2003, 2007), Graph Theory (2005, 2008), Operations Research (2009), Introduction into Mathematics (Einführungslehrveranstaltung, 2010), Mathematics of Finance (2001) and numerous problems sessions for mathematicians, computer scientists, physicists and future teachers.

Selected Administrative Activities

- 2002 **Member of the organizing committee of the International Conference on Operations Research 2002**, *Alpen-Adria Universität Klagenfurt*.
- 2003 – 2009 **Deputy secretary of the Austrian Mathematical Society ÖMG**.
- 2005 **Member of the organizing committee of the ACE Summer School on Geometric Combinatorics**, *Universität Wien*.
- since 2004 **Member of several administrative committees: Fakultätskonferenz, Studienkonferenz (Ersatzmitglied), Senat (Ersatzmitglied), several hiring committees and habilitation committees**, *Universität Wien*.
- since 2006 **Several activities for the advancement of women in mathematics**.