Personal Information

Name	**Angelika Wiegele**.
Affiliation	**Alpen-Adria-Universität Klagenfurt, Institut für Mathematik**, *Universitätsstr. 65-67, 9020 Klagenfurt am Wörthersee*.
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Education

Mar 2013	**Venia docendi for Applied Mathematics**, *Alpen-Adria-Universität Klagenfurt*. Degree: Privatdozentin
titel of the thesis	**On Semidefinite Programming for Quadratic Optimization**.
May 2002– Oct 2006	**Doctoral studies in Mathematics**, *Alpen-Adria-Universität Klagenfurt*. Degree: Dr. techn., passed with distinction
title of the thesis	**Nonlinear Optimization Techniques applied to Combinatorial Optimization Problems**, *Supervisor: Franz Rendl*.
Oct 1994– May 2001	**Diploma studies in Mathematics**, *Alpen-Adria-Universität Klagenfurt*. Degree: Dipl.-Ing., passed with distinction
title of the thesis	**Efficient polystyrene cutting**, *Supervisor: Franz Rendl*.
Sep 1998– Jun 1999	**Erasmus Exchange Student**, *City University London, Mathematics Department*.
Jun 1994	**Matura**, *Höhere Technische Bundes-, Lehr- und Versuchsanstalt Villach*. passed with distinction

Academic Employment

since Feb 2022	**Professor**, *Alpen-Adria-Universität Klagenfurt, Institut für Mathematik*.
Aug 2013– Jan 2022	**Associate Professor**, *Alpen-Adria-Universität Klagenfurt, Institut für Mathematik*.
Oct–Nov 2019	**Visiting Professor**, *Università degli Studi di Roma "Tor Vergata"*.
Mar 2007– Jul 2013	**Assistant professor (Assistenzprofessorin)**, *Alpen-Adria-Universität Klagenfurt, Institut für Mathematik*.
Sep 2007– Dec 2007	**Researcher within the Marie Skłodowska-Curie RTN ADONET**, *IASI-CNR, Rome*.
Dec 2006– Feb 2007	**Researcher within the Marie Skłodowska-Curie RTN ADONET**, *Universität zu Köln, Institut für Informatik*.
Mar 2004– Nov 2006	**Research and teaching assistant (Universitätsassistentin)**, *Alpen-Adria-Universität Klagenfurt, Institut für Mathematik*.
Mar 2006– May 2006	**Researcher within the Marie Skłodowska-Curie RTN ADONET**, *IASI-CNR, Rome*.

May 2002–Feb 2004	**Research stipendiary (Wissenschaftliche Mitarbeiterin in Ausbildung)**, *Alpen-Adria-Universität Klagenfurt, Institut für Mathematik*.
Sep 2001–Feb 2002	**Research and teaching assistant (Universitätsassistentin)**, *Technische Universität Graz, Institut für Mathematik B*.
Mar 2000–Jun 2000	**Industrial project**, *TU Eindhoven, Department of Mathematics and Computer Science*, Supervisor: Rudi Pendavingh.

Selected Publications in Peer-Reviewed Journals/Proceedings and Preprints

The papers are available via the given identifier links or on arXiv.

[1] Nicolò Gusmeroli and Angelika Wiegele. EXPEDIS: An exact penalty method over discrete sets. *Discrete Optimization*, page 100622, 2021. ISSN 1572-5286. doi: 10.1016/j.disopt.2021.100622. https://doi.org/10.1016/j.disopt.2021.100622.

[2] Elisabeth Gaar, Daniel Krenn, Susan Margulies, and Angelika Wiegele. Towards a computational proof of Vizing's conjecture using semidefinite programming and sums-of-squares. *Journal of Symbolic Computation*, 107:67–105, 2021. ISSN 0747-7171. doi: 10.1016/j.jsc.2021.01.003. https://doi.org/10.1016/j.jsc.2021.01.003.

[3] Christoph Buchheim, Maribel Montenegro, and Angelika Wiegele. SDP-based branch-and-bound for non-convex quadratic integer optimization. *J. Global Optim.*, 73 (3):485–514, 2019. ISSN 0925-5001. doi: 10.1007/s10898-018-0717-z. https://doi.org/10.1007/s10898-018-0717-z.

[4] Christoph Buchheim and Angelika Wiegele. Semidefinite relaxations for non-convex quadratic mixed-integer programming. *Math. Program.*, 141(1-2, Ser. A):435–452, 2013. ISSN 0025-5610. doi: 10.1007/s10107-012-0534-y. https://doi.org/10.1007/s10107-012-0534-y.

[5] Franz Rendl, Giovanni Rinaldi, and Angelika Wiegele. Solving max-cut to optimality by intersecting semidefinite and polyhedral relaxations. *Math. Program.*, 121(2, Ser. A):307–335, 2010. ISSN 0025-5610. doi: 10.1007/s10107-008-0235-8. https://doi.org/10.1007/s10107-008-0235-8.

[6] Jérôme Malick, Janez Povh, Franz Rendl, and Angelika Wiegele. Regularization methods for semidefinite programming. *SIAM J. Optim.*, 20(1):336–356, 2009. ISSN 1052-6234. doi: 10.1137/070704575. https://doi.org/10.1137/070704575.

Selected Invited Talks at Conferences and Workshops

Mar 2020	**SIGOPT 2020 International Conference on Optimization**, *Solving Constrained Binary Quadratic Problems via Max-Cut*, Dortmund, *plenary talk*.
Mar 2019	**Women in Optimization**, *Semidefinite Programmierung und Kombinatorische Optimierung: eine Symbiose*, Bonn.
Jul 2018	**16th EUROPT Workshop on Advances in Continuous Optimization**, *Algorithmic Approaches for Semidefinite Programming Applied to Combinatorial Optimization*, Almería, *plenary talk*.

Jun 2018	**Cologne Twente Workshop on Graphs and Combinatorial Optimization 2018**, *Modeling and Solving Combinatorial Optimization Problems using Semidefinite Programming*, Paris, *plenary talk.*
Feb 2018	**Dagstuhl Seminar Designing and Implementing Algorithms for Mixed-Integer Nonlinear Optimization**, *Combining ADAL with Factorizing the Dual to Solve SDP*, Dagstuhl.
Aug 2013	**Isaac-Newton-Institute for Mathematical Sciences**, *Semidefinite Relaxations for various non-convex quadratic optimization problems*, Cambridge.
Apr 2010	**European Workshop on Mixed Integer Nonlinear Programming**, *Using SDP for Solving MIQP*, CIRM Marseille.
2006–2020	**Seminar talks at Universität Innsbruck, TU Graz, Universität Dortmund, Université Paris 13, TU Berlin, Emory University Atlanta, Universität Wien, University of Tilburg, IASI-CNR Rome**.

Selected Presentations at Conferences and Workshops

Jan 2020	**24th Combinatorial Optimization Workshop**, *Improving ADMMs for Solving Doubly Nonnegative Programsthrough Dual Factorization*, Aussois.
Aug 2019	**ICCOPT 2019, the Sixth International Conference on Continuous Optimization**, *An Exact Penalty Method over Discrete Sets*, Berlin.
Sep 2018	**European Women in Mathematics General Meeting 2018**, *Upper Bounds on Combintorial Optimization Problems through an Augmented Lagrangian Algorithm*, Graz.
Mar 2018	**7th International Conference on High Performance Scientific Computing**, *Improving Alternating Direction Augmented Lagrangian Methods for Solving SDP by a Dual Step*, Hà nội.
Sep 2017	**OR 2017 – International Conference on Operations Research**, *DADAL - Improving Alternating Direction Augmented Lagrangian Algorithm for SDP by a Dual Step*, Berlin.
May 2016	**ISCO 2016 - 4th International Symposium on Combinatorial Optimization**, *A coordinate ascent method for solving semidefinite relaxations of non-convex quadratic integer programs*, Vietri sul Mare.
Jan 2013	**17th Combinatorial Optimization Workshop**, *A new strengthening of semidefinite max-cut relaxations*, Aussois.
Aug 2012	**21st International Symposium on Mathematical Programming**, *Lasserre Hierarchy from a Computational Point of View*, Berlin.
May 2011	**SIAM Conference on Optimization**, *A Semidefinite Relaxation for Sparse Max-Cut Problems*, Darmstadt.
Jan 2010	**14th Combinatorial Optimization Workshop**, *Using SDP for solving Non-Convex MIQP*, Aussois.
Sep 2009	**17. Kongress der Österreichischen Mathematischen Gesellschaft**, *First Experiments with an SDP based Branch-and-Bound Algorithm for solving non-convex QP*, Graz.
May 2008	**SIAM Conference on Optimization**, *Solving Quadratic $0-1$ and Max-Cut Problems by Semidefinite Programming*, Boston.

Jun 2007	**IPCO 2007, The 12th Conference on Integer Programming and Combinatorial Optimization, Cornell University**, *A Branch and Bound Algorithm for Max-Cut Based on Combining Semidefinite and Polyhedral Relaxations*, Ithaca, New York.

Research Visits

2017	**Universitá di Roma La Sapienza, Dipartimento di Informatica e Sistemistica**, *one week*.
2013, 2014	**Laboratoire d'Informatique de l'Université Paris Nord, Institut Galilée**, *two weeks each*.
2013	**Isaac-Newton-Institute for Mathematical Sciences, Cambridge**, *two weeks*.
2012	**Ecole Polytechnique de Montreal, Département de mathématiques et de génie industriel**, *one week*.
2012	**Universität Erlangen, Department Mathematik**, *one week*.
2009, 2011, 2013	**TU Dortmund, Fakultät für Mathematik**, *one week each*.
2009, 2011	**Univerza v Ljubljani, Fakulteta za matematiko in fiziko**, *three days each*.
2009	**TU München, Fakultät für Mathematik**, *one week*.
2008	**Universitá di Bologna, Dipartimento di Elettronica, Informatica, Sistemistica**, *one week*.
2008	**Universitá di Roma La Sapienza, Dipartimento di Informatica e Sistemistica**, *one week*.
2008	**Emory University, Department of Mathematics & Computer Science**, *one week*.
2005	**Centre de recherche Inria, Grenoble**, *one week*.
2004, 2009, 2010, 2011, 2012	**Universität zu Köln, Institut für Informatik**, *4 weeks in total*.
2002, 2005	**IASI – CNR Rome**, *one week each*.

Research Grants

2020–2024	**FWF doc.funds**, Modeling – Analysis – Optimization of discrete, continuous, and stochastic systems, co-PI, Coordinator: Michaela Szölgyenyi, € 1780k (FWF) plus € 890k (AAU).
2019	**FFG Innovationsscheck**, Transport Logistik (with Stefan Rass), € 10k (FFG) plus € 2.5k (Arduvi GmbH).
2018–2021	**Horizon 2020, Marie Skłodowska-Curie ITN**, MINOA - Mixed-Integer Nonlinear Optimisation Applications, co-PI, Coordinator: Frauke Liers, FAU Erlangen-Nürnberg, € 3,000k, grant at AAU: € 255k.
2017–2021	**Austrian Science Fund (FWF) and Slovene Research Agency (ARRS)**, High-Performance Solvers for Binary Quadratic Problems, € 279k (FWF) plus € 264k (ARRS).
2011–2012	**ÖAD – Austrian agency for international cooperation in education and research**, *Algorithms for matricial polynomials*, Bilateral research project with Slovenia, travel grants € 5k.

Jul 2009	**FFG – Austrian Research Promotion Agency**, *generation innovation Praktika*, Project for integrating talented undergraduates in research projects, €1k.
2008–2009	**Forschungsrat der AAU**, *A low-rank approach for solving sparse max-cut problems*, travel grants €1.6k.

Awards

2022/2023	**Global Faculty member of the University of Cologne within the key profile area Quantum Matter and Materials**.
2021	**Offer (ranked 1st) § 99 (4) upgrade to full professor for associate professors at Universität Klagenfurt**, *negotiations ongoing*.
2020	**Offer (ranked 1st) § 98 professorship "Optimierung" at Universität Innsbruck**, *declined*.
2019	**Visiting Professor at Università degli Studi di Roma "Tor Vergata"**.
2013	**Offer (ranked 2nd) W2-professorship (5 years) "Diskrete Optimierung" at TU Berlin**, *declined*.
2012	**Förderungspreis für Naturwissenschaften/Technische Wissenschaften des Landes Kärnten**.
2008	**Die Lupe 2008 – Award for excellent science communication**.
2007	**ÖGOR BA-CA Dissertations Preis für Operations Research**.
2007	**Preis der Dr.-Maria-Schaumayerstiftung**.
2004	**Best Poster Presented by a Student at Fields-MITACS Large Scale Nonlinear and Semidefinite Programming Workshop (Waterloo)**.
2003	**Förderstipendium des Studiendekanats der Fakultät für Wirtschaftswissenschaften und Informatik**.

Teaching Experience

I have been teaching at the University of Klagenfurt, at Università degli Studi di Roma "Tor Vergata" (winter term 19/20), and at the Technical University of Graz (Winter term 01/02). My teaching includes lectures, exercise sessions and seminars for the study programs in mathematics, informatics, information technology, business administration, and for the teacher training (mathematics and computer science), at the level of bachelor, master and doctoral studies. Furthermore, I participated in the Erasmus+ project "Smart Grid Technology".

The courses given include Operations Research, Linear Programming, Nonlinear Programming, Combinatorics and Graph Theory, Algorithmic Graph Theory, Selected Topics in Graph Theory, Computermathematics, Integer Programming, Linear Algebra, Linear Algebra for Informatics, Mathematics for Business Administration.

Students and Post Doc Fellows

2018–2020	**Elisabeth Gaar**, *post doc fellow*.
ongoing	**Jan Schwiddessen**, *PhD student*.
ongoing	**Diane Puges**, *PhD student*.
ongoing	**Melanie Siebenhofer**, *PhD student*.
2022	**Shudian Zhao**, *PhD student*.
2021	**Nicolò Gusmeroli**, *PhD student*.

2009–2021 **Supervision of 17 bachelor and master students**.

External member of the PhD committees of Maribel Montenegro (TU Dortmund, defense 2017), Timotej Hrga (Univ. Ljubjlana, defense 2022), Valentin Durante (INRAE Toulouse, ongoing).

Refereeing, Editorial Work, Committees

Guest editor Special Issue of Mathematical Programming B (2020), Associate Editor and founding member of OJMO – Open Journal on Mathematical Optimization (since 2019), Associate Editor of TOP – Journal of the Spanish Society of Statistics and Operations Research (since 2020), Department Editor of OR Spectrum.

Evaluations for funding organizations and awards: Dutch Research Council (NWO), Italian Agency for the Evaluation of Universities and Research Centers (ANVUR), Best Dissertation and Best Master's Thesis in Operations Research granted by ÖGOR (Austrian Society for Operations Research), WTZ Science & Technology cooperation (OeAD), COST Association.

Referee for several journals including Mathematical Programming A, B, and C, SIAM Journal on Optimization, Nature Physics, Discrete Applied Mathematics, Discrete Optimization, Journal of Combinatorial Optimization, 4OR, Optimization Methods & Software, Computers and Operations Research, Naval Research Logistics, Operations Research Letters, Journal of Global Optimization, INFORMS Journal on Computing.

Member of the Program Committee of *OR 2021 – International Conference on Operations Research* (Universität Bern), *MINOA doctoral school* on "Nonlinear Optimal Control Problems: Methods and Applications" and "Conic Optimization and Applications" (online), *ISCO 2020: International Symposium on Combinatorial Optimization* (Montreal), *CTW2020: 18th Cologne-Twente Workshop on Graphs and Combinatorial Optimization* (Ischia), *EUROPT 2019 – The 17th Workshop on Advances in Continuous Optimization* (Strathclyde), *IPCO 2019 – The 20th Conference on Integer Programming and Combinatorial Optimization* (Ann Arbor, Michigan, USA). Stream organizer (Conic Programming, Quadratic Programming and Semi-Definite Programming) at the ISMP 2018 (Bordeaux).

Selected Administrative Activities

since 2018 **Head of the Department of Mathematics**.

since 2019 **Member of the senate**.

2011–2021 **Member or chair of several hiring and habilitation committees (at Univ. Klagenfurt as well as external)**.

2021 **Member of the selection committee "Spitzensport und Studium"**.

2015–2018 **Faculty representative in the "Nachhaltigkeitsbeirat" (EMAS)**.

2007–2018 **Head of the Curricularkommission Mathematik**.

2010–2016 **Member of the senate**.