

Personal Data

Name: Johann Georg Danzl
Assistant Professor

Academic titles: Priv. Doz. Dr. med. univ. Dr. rer. nat.

Date of Birth: May 1st, 1978

Work address: Institute of Science and Technology Austria
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Current Position

2017 – : Tenure Track Assistant Professor,
Institute of Science and Technology Austria.

Previous Positions

02/2012 – 11/2016: Postdoctoral fellow, Department of NanoBiophotonics, Prof. Dr. S. W. Hell,
Max-Planck Institute for Biophysical Chemistry, Göttingen, Germany.
Nanoscale fluorescence imaging.

05/2010 – 01/2012: Postdoctoral fellow, Institute for Experimental Physics, Prof. Dr. H.-C. Nägerl,
Leopold-Franzens University, Innsbruck, Austria.
Ultracold molecules near quantum degeneracy, tuneable quantum gases in optical
lattices.

Education

04/2017: Habilitation in Biophysics (Priv.-Doz.), Medical University Innsbruck, A.

05/2007 – 04/2010: Doctoral Studies in Physics (Dr. rer. nat.) with Prof. Dr. Hanns-Christoph Nägerl,
Institute for Experimental Physics, Leopold-Franzens University, Innsbruck, A.
Rovibronic ground-state molecules near quantum degeneracy.

09/2005 – 03/2007: Diploma work in experimental physics with advisors Prof. Dr. Hanns-Christoph
Nägerl and Prof. Dr. Rudolf Grimm, Institute for Experimental Physics,
Leopold-Franzens University, Innsbruck, A. Ultracold quantum gases.

08/1999 – 03/2007: Physics Diploma Studies (Mag. rer. nat.), Experimental Physics Branch,
Leopold-Franzens University, Innsbruck, A.

08/1997 – 06/2005: Medical Studies (Dr. med. univ.),
Medical University Innsbruck, A.

09/2004 – 02/2005: European Mobility Programme Erasmus in Medicine,
Universidad Complutense, Madrid, Spain.

08/2004: Elective Clinical Clerkship: “Advanced Study in Neurology”,
Harvard Medical School, Boston, MA, USA.

02/2004: Clinical Rotation, Hospital General Regional No. 46 del IMSS,
Guadalajara, Jalisco, Mexico.

08/1999 – 12/2001: Electrophysiology experiments (cell volume regulation),
Physiology Division, Medical University Innsbruck, A.

08/2000: Visiting Student, Howard Hughes Medical Institute (HHMI) for Basic
Cardiovascular Research, Children's Hospital, Harvard, Boston, USA.

1996 – 1997: Foreign Language Training in Innsbruck and Florence (Italian, Spanish, French).

1988 – 1996: Secondary School, Bundesgymnasium St. Johann in Tirol, linguistic branch.

Distinctions

- 2018 Otto-Kraupp Prize for best medical Habilitation in Austria, awarded by the Society of Physicians in Vienna (Gesellschaft der Ärzte in Wien)
- 2012 – 2014: Marie Curie Intra-European Postdoctoral Fellowship, MPI Göttingen.
- 2011: PhD Thesis selected as one of the 4 best PhD theses in the years 2009 and 2010 by the AMO (Atomic, Molecular, Optical) section of the German Physical Society.
- 2010: Liechtenstein Prize 2009 awarded by the Principality of Liechtenstein, Vaduz, for the production of a quantum gas of deeply bound molecules.
- 2009: Skinner Prize, Faraday Discussion 142 (Royal Society of Chemistry), Durham, England.
- 2006: Scholarship for intellectually highly gifted students, Rotary Club Innsbruck, Austria.
- 2004, 1999: Scholarships for excellent academic achievements in medicine, Medical University Innsbruck, Austria.
- 2002: Scholarship for excellent academic achievements in physics, Leopold-Franzens University, Innsbruck, Austria.
- 1996: Scholarship for studying Italian at Istituto Michelangelo (Florence) from Landesschulrat Tirol.

Grants

- 2019 – 2022: Member of FWF Doctoral School: Molecular Drug Targets (MolTag).
- 2018 – 2021: ANR/FWF International French/Austrian Grant. French Project Partner: Dr. Olivier Thoumine, Interdisciplinary Institute for Neuroscience, Bordeaux, F.
- 2018 – 2019: Equipment Investment Grant, IST Austria (competitive in-house funding).
- 2017 – 2019: Interdisciplinary Projects Grant, IST Austria (competitive in-house funding).
- 2010: Grant from Tyrolean Science Fund (TWF), "Direct Detection of Molecular Bose-Einstein Condensation" (UNI-0404/787).

Distinctions to Group Members:

- 2018 – 2020: HFSP Long Term Fellowship to Dr. Wiebke Jahr.
- 2018 – 2019: ISTplus Fellowship to Dr. Sven Truckenbrodt (funded by Marie Skłodowska-Curie grant agreement No 754411 under Horizon 2020).
- 2018 – 2020: EMBO Long Term Fellowship to Dr. Sven Truckenbrodt.
- 2018: ProScientia Undergraduate Fellowship to Jakob Vorlauffer.

Teaching:

- 2018/19 Fall 2 term, IST graduate school: „Biophotonics/High-Resolution Fluorescence Imaging“, Advanced course for physics, biology, and neuroscience tracks.
- 2017/18 Spring 2 term, IST graduate school: „Biophotonics/High-Resolution Fluorescence Imaging“.
- 2017/18 Spring term, IST graduate school: Biology Track Core Course (together with other faculty).
- 04/2016: Course "High resolution fluorescence microscopy and its application in the life sciences". Medical University Innsbruck, A. Courses Nr. 202505 and 202506 (15 lecture units and 15 practicum units) for medical, biology, and physics students (undergraduate and graduate).

Publications:

Sum of times cited: 2459 (2397 without self citations). Citing articles: 2025 (2003 without self citations). (Thomson Reuters, Web of Science, Jan. 2019). h-index: 20.
Researcher-ID: N-9987-2015, ORCID: 0000-0001-8559-3973
OA: open access

I: Original Papers

1. S. Truckenbrodt, C. Sommer, S. Rizzoli, & **J. G. Danzl** (2019):
A practical guide to optimization in X10 expansion microscopy;
Nature Protocols 14, 832–863, <https://rdcu.be/bnkMQ> doi: 10.1038/s41596-018-0117-3
2. M. Lindner, A. Tresztyenyak, G. Fülöp, W. Jahr, A. Prinz, I. Prinz, **J. G. Danzl**, G. J. Schütz & E. Sevcsik (2018):
A fast and simple contact printing approach to generate 2D protein nanopatterns;
Frontiers in Chemistry, doi: 10.3389/fchem.2018.00655.
3. T. Fehrentz, F. M. E. Huber, N. Hartrampf, T. Bruegmann, J. A. Frank, N. H. F. Fine, D. Malan, **J. G. Danzl**, D. B. Tikhonov, M. Sumser, P. Sasse, D. J. Hodson, B. S. Zhorov, N. Klöcker & D. Trauner (2018):
Optical control of L-type Ca²⁺ channels using a diltiazem photoswitch;
Nature Chemical Biology 14, 764-767.
4. S. C. Sidenstein, E. D'Este, M. J. Böhm, **J. G. Danzl**, V. N. Belov & S. W. Hell (2016):
Multicolour multilevel STED nanoscopy of Actin/Spectrin organization at synapses;
Scientific Reports, 6:26725.
5. A. N. Butkevich, G. Y. Mitronova, S. C. Sidenstein, J. L. Klocke, D. Kamin, D. N. H. Meineke, E. D'Este, P.-T. Kraemer, **J. G. Danzl**, V. N. Belov, S. W. Hell (2016):
Fluorescent rhodamines and fluorogenic carbopyronines for super-resolution STED microscopy in living cells;
Angewandte Chemie Int. Edition, DOI: 10.1002/anie.201511018.
6. **J.G. Danzl***+, S.C. Sidenstein+, C. Gregor, N. Urban, P. Ilgen, S. Jakobs, S.W. Hell* (2016):
Coordinate-targeted fluorescence nanoscopy with multiple off-states;
Nature Photonics 10, 122.
*corresponding authors, + equal contributions.
Nature Photonics cover story February 2016.
Highlighted in Nature Methods 13, 196 (2016).
7. N.A. Jensen, **J.G. Danzl**, K. I. Willig, F. Lavoie-Cardinal, T. Brakemann, S. W. Hell, S. Jakobs (2014):
Coordinate-targeted and coordinate-stochastic super-resolution microscopy with the reversibly switchable fluorescent protein Dreiklang;
ChemPhysChem 15, 756.
8. M. J. Mark, E. Haller, K. Lauber, **J. G. Danzl**, A. Janisch, H. P. Büchler, A. J. Daley, and H.-C. Nägerl (2012):
Preparation and spectroscopy of a metastable Mott insulator state with attractive interactions;
Phys. Rev. Lett. 108, 215302. OA: arXiv:1201.1008.
9. E. Haller, M. Rabie, M.J. Mark, **J.G. Danzl**, R. Hart, K. Lauber, G. Pupillo, H.-C. Nägerl (2011):
Three-Body Correlation Functions and Recombination Rates for Bosons in Three Dimensions and One Dimension;
Phys. Rev. Lett. 107, 230404. OA: arXiv:1107.4516.
10. M.J. Mark, E. Haller, K. Lauber, **J.G. Danzl**, A.J. Daley, H.-C. Nägerl (2011):
Precision Measurements on a Tunable Mott Insulator of Ultracold Atoms;
Phys. Rev. Lett. 107, 175301. OA: arXiv:1107.1803.
11. M.J. Mark, E. Haller, **J.G. Danzl**, K. Lauber, M. Gustavsson, H.-C. Nägerl (2011):
Demonstration of the temporal matter-wave Talbot effect for trapped matter waves;
New J. Phys. 13, 085008. OA.
12. R. Vexiau, N. Bouloufa, M. Aymar, **J.G. Danzl**, M.J. Mark, H.-C. Nägerl, O. Duhieu (2011):

- Optimal trapping wavelengths of Cs₂ molecules in an optical lattice;
Eur. Phys. J. D **65**, 243. OA: arXiv:1102.1793.
13. J. Bai, E. H. Ahmed, B. Beser, Y. Guan, S. Kotochigova, A. M. Lyyra, S. Ashman, C. M. Wolfe, J. Huennekens, F. Xie, D. Li, L. Li, M. Tamanis, R. Ferber, A. Drozdova, E. Pazyuk, A. V. Stolyarov, **J.G. Danzl**, H.-C. Nägerl, N. Bouloufa, O. Dulieu, C. Amiot, H. Salami, T. Bergeman (2011):
Global analysis of data on the spin-orbit coupled A¹Σ_u⁺ and b³Π_u states of Cs₂;
Phys. Rev. A **83**, 032514. OA: arXiv:1101.5412.
 14. E. Haller, R. Hart, M.J. Mark, **J.G. Danzl**, L. Reichsöllner, M. Gustavsson, M. Dalmonte, G. Pupillo, H.-C. Nägerl (2010):
Pinning quantum phase transition for a Luttinger liquid of strongly interacting bosons;
Nature **466**, 597. OA: arXiv:1004.3168.
 15. M. Gustavsson, E. Haller, M. J. Mark, **J.G. Danzl**, R. Hart, A. J. Daley, H.-C. Nägerl (2010):
Interference of interacting matter waves;
New J. Phys. **12**, 065029. OA.
 16. E. Haller, R. Hart, M.J. Mark, **J.G. Danzl**, L. Reichsöllner, H.-C. Nägerl (2010):
Inducing Transport in a Dissipation-Free Lattice with Super Bloch Oscillations;
Phys. Rev. Lett. **104**, 200403. OA: arXiv:1001.1206.
 17. E. Haller, M.J. Mark, R. Hart, **J.G. Danzl**, L. Reichsöllner, V. Melezhik, P. Schmelcher, H.-C. Nägerl (2010):
Confinement-Induced Resonances in Low-Dimensional Quantum Systems;
Phys. Rev. Lett. **104**, 153203. OA: arXiv:1002.3795.
 18. **J.G. Danzl***, M.J. Mark, E. Haller, M. Gustavsson, R. Hart, J. Aldegunde, J. M. Hutson, H.-C. Nägerl* (2010):
An ultracold high-density sample of rovibronic ground-state molecules in an optical lattice;
Nature Physics **6**, 265 (2010). OA: arXiv:0909.4700.
*corresponding authors.
 19. E. Haller, M. Gustavsson, M.J. Mark, **J.G. Danzl**, R. Hart, G. Pupillo, H.-C. Nägerl (2009):
Realization of an Excited, Strongly-Correlated Quantum Gas Phase;
Science **325**, 1224. OA: arXiv:1006.0739.
 20. **J.G. Danzl**, M.J. Mark, E. Haller, M. Gustavsson, R. Hart, A. Liem, H. Zellmer, H.-C. Nägerl (2009):
Deeply bound ultracold molecules in an optical lattice;
New Journal of Physics **11**, 055036, IOP select. OA.
 21. **J.G. Danzl***, M.J. Mark, E. Haller, M. Gustavsson, N. Bouloufa, O. Dulieu, H. Ritsch, R. Hart, H.-C. Nägerl (2009):
Precision molecular spectroscopy for ground state transfer of molecular quantum gases;
Faraday Discussions **142**, 283. OA: arXiv:0811.2374. *corresponding author.
 22. M.J. Mark, **J.G. Danzl**, E. Haller, M. Gustavsson, N. Bouloufa, O. Dulieu, H. Salami, T. Bergeman, H. Ritsch, R. Hart, H.-C. Nägerl (2009):
Dark resonances for ground state transfer of molecular quantum gases;
Appl. Phys. B **95**, 219, invited paper. OA: arXiv:0811.0695.
 23. **J. G. Danzl***, E. Haller, M. Gustavsson, M. J. Mark, R. Hart, N. Bouloufa, O. Dulieu, H. Ritsch, H.-C. Nägerl (2008):
Quantum gas of deeply bound ground state molecules;
Science **321**, 1062. OA: arXiv:0806.2284. *corresponding author.
 24. S. Knoop, M. Mark, F. Ferlaino, **J.G. Danzl**, T. Kraemer, H.-C. Nägerl, R. Grimm (2008):
Metastable Feshbach molecules in high rotational states;
Phys. Rev. Lett. **100**, 083002. OA: arXiv:0710.4052.
 25. M. Gustavsson, E. Haller, M. J. Mark, **J.G. Danzl**, G. Rojas-Kopeinig, H.-C. Nägerl (2008):
Control of interaction-induced dephasing of Bloch oscillations;
Phys. Rev. Lett. **100**, 080404. OA: arXiv:0710.5083.

26. M. Mark, F. Ferlaino, S. Knoop, **J.G. Danzl**, T. Kraemer, C. Chin, H.-C. Nägerl, R. Grimm (2007): Spectroscopy of ultracold, trapped cesium Feshbach molecules; **Phys. Rev. A** **76**, 042514. OA: arXiv:0706.1041.
27. T. Kraemer, M. Mark, P. Waldburger, **J.G. Danzl**, C. Chin, B. Engeser, A. D. Lange, K. Pilch, A. Jaakkola, H.-C. Nägerl and R. Grimm (2006): Evidence for Efimov quantum states in an ultracold gas of caesium atoms; **Nature** **440**, 315. OA: arXiv: cond-mat/0512394.
28. J. Fürst, M. Ritter, J. Rudzki, **J.G. Danzl**, M. Gschwentner, E. Scandella, M. Jakab, M. König, B. Oehl, F. Lang, P. Deetjen, M. Paulmichl (2002): ICln ion channel splice variants in *C. elegans*: Voltage dependence and interaction with an operon partner-protein; **J. Biol. Chem.** **277**(6), 4435. OA.

II: Review articles and clinical case reports

1. W. Jahr, P. Velicky, **J.G. Danzl** (2019): Strategies to maximize performance in STImulated Emission Depletion (STED) nanoscopy of biological specimens. **Methods**, corrected proof, Review article.
2. B.V. Erne, M. Graff, W. Klemm, **J.G. Danzl**, G. Leschber (2012): Bulla in the lung; **The Lancet** **380**, 1280. Clinical case report.
3. J. Fürst, M. Jakab, M. König, M. Ritter, M. Gschwentner, J. Rudzki, **J. Danzl**, M. Mayer, C. M. Burtscher, J. Schirmer, B. Maier, M. Nairz, S. Chwatal, M. Paulmichl (2000): Structure and Function of the Ion Channel ICln; **Cell. Physiol. Biochem.** **10**, 329. Review article.

III: Conference proceedings

1. Ultracold and dense samples of ground-state molecules in lattice potentials. H.-C. Nägerl, M. J. Mark, E. Haller, M. Gustavsson, R. Hart, **J. G. Danzl** (2011): **J. Phys.: Conf. Ser.** **264**, 012015, Proceedings of the 22nd International Conference on Atomic Physics (ICAP) 2010. OA: arXiv:1011.0179.
2. Production of a quantum gas of rovibronic ground-state molecules in an optical lattice. **J.G. Danzl**, M.J. Mark, E. Haller, G. Gustavsson, R. Hart, H.-C. Nägerl (2010): **Laser Spectroscopy** **256**, Proceedings of the XIX conference on Laser spectroscopy 2009.
3. Experimental evidence for Efimov quantum states. HC Nägerl, T. Kraemer, M. Mark, P. Waldburger, **J.G. Danzl**, B. Engeser, A.D. Lange, K. Pilch, A. Jaakkola, C. Chin, R. Grimm (2006): **Atomic Physics** **20**, **AIP Conference Proceedings** 869, 269.