

NAME		POSITION TITLE		
Prevedel, Robert		Group Leader		
INSTITUTION AND LOCATION		DEGREE	YEAR(s)	FIELD OF STUDY
Diploma Thesis, University of Vienna, Austria		Magister	1	Quantum Physics
PhD Thesis, University of Vienna, Austria		PhD	3	Quantum Optics
Institute for Quantum Computing, University of Waterloo, Canada		Post doc	2	Quantum Imaging
Institute of Molecular Pathology & Max F. Perutz Laboratories, Vienna, Austria		Post doc	5	Biological Imaging

### POSITIONS

2016 – present	Group Leader, EMBL Heidelberg, Germany (open-ended contract since 2022)
2025 – present	Senior Scientist, EMBL Heidelberg, Germany
2019 – present	Group Leader, Molecular Medicine Partnership Unit, Heidelberg, Germany
2021 – present	Investigator, Interdisciplinary Center for Neurosciences, Heidelberg, Germany
2021 – present	Investigator, German Center for Lung Research (DZL), Germany
2011 – 2016	Senior Post-Doctoral Fellow (Marie Curie), Research Institute of Molecular Pathology (IMP) and Max F. Perutz Laboratories GmbH (MFPL), Vienna, Austria. Mentor: Dr. Alipasha Vaziri
2013 – 2016	External Lecturer, FH IMC Krems, Krems, Austria.
2009 – 2011	Post-Doctoral Fellow (Schrödinger), Institute for Quantum Computing, University of Waterloo, Canada. Mentor: Prof. Kevin Resch
2006 – 2009	Research and Teaching Assistant, Faculty of Physics, University of Vienna, Austria. Mentor: Prof. Dr. Anton Zeilinger (Nobel Laureate Physics 2022)
2005	Joint Study Fellow, Department of Physics, University of Queensland, Brisbane, Australia. Mentor: Prof. Andrew White
2004 – 2005	Scientific Assistant, Institute for Experimental Physics, University of Vienna, Austria. Mentor: Prof. Dr. Anton Zeilinger (Nobel Laureate Physics 2022)

### GRANTS (Total ~5.8MEUR)

2025	EZN Cancer Neuroscience Seed Funding - Advanced intravital deep imaging, 60k€.
2024	CZI Deep Tissue Imaging grant (Phase 2) - Smart combination of light & sound, 700k\$.
2024	GSK-Collaboration grant – Biomechanics of ECM in respiratory diseases, ~350k€.
2024	DZL4.0 – German Center for Lung Research, Brillouin microscopy, BMBF, ~350k€.
2023	Stimulator grant – Correlative brain imaging across scales, LifeScience Alliance, 100k€.
2022	Horizon Infra-Tech grant – IMAGINE (Co-PI, WP-lead), EU Commission, 750k€.
2021	DFG grant – Revealing the neural population code of auditory space, 200k€.
2021	CZI Deep Tissue Imaging grant (Phase 1) - Smart combination of light & sound, 330k\$.
2021, 2024	MOLIT Collaboration grant - 4D imaging methods for tumor organoids, ~250k€.
2020	DZL3.0 – German Center for Lung Research, Brillouin microscopy, BMBF, ~350k€.
2020	FET Proactive - Multi-photon infrared brain imaging, EU Commission, 470k€.
2019	ERC Consolidator grant - Brillouin microscopy, EU Commission, 2.000k€.
2019	DFG SPP grant - Development of new voltage imaging tools, 250k€.
2019	Attract Seed Grant - Ultra-fast volumetric microscopy (Co-PI), EU Commission, 100k€.

### FELLOWSHIPS (Total ~570KEUR)

2012	Marie Curie IIF Post-Doctoral Fellowship, European Union, 180kEUR.
2011	VIPS Post-Doctoral Fellowship, Max F. Perutz Laboratories, 280kEUR.
2009	Erwin-Schrödinger Post-Doctoral Fellowship, Austrian Science Fund, 60kEUR.

2009 MRI Post-Doctoral Fellowship, Ontario Ministry for Research & Innovation, 50kCAD.  
2005 Joint Study Fellowship, University of Vienna.

## TEACHING EXPERIENCE

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From 2016 Light microscopy lectures & course practicals at EMBL, Heidelberg.  
From 2019 Neurobiology lectures & course practicals at EMBL, Heidelberg.  
2013 – 2016 Lecturer for laboratory course Analytical Chemistry, FH IMC Krems.  
2013 Co-Lecturer Physical Chemistry 2, University of Vienna.  
2013 Tutor for laboratory course Biophysik Praktikum, University of Vienna  
2009 – 2011 Tutor for laboratory course Experimental Quantum Information, University of Waterloo.  
2006 – 2009 Substitute Lecturer & Tutor for undergraduate physics courses, University of Vienna.

## AWARDS

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2019 ERC Consolidator grant  
2014 FENS-IBRO Travel Award, from the FENS.  
2010 PhD thesis selected as one of 4 best in 2008/09 by AMO section of DPG.  
2006, 2007 Merit Scholarship, from the University of Vienna.  
2006 KWA Scholarship, from the University of Vienna (Conference Grant).  
2006 International Communication Scholarship, from the ÖFG (Travel Grant).  
2004 Top-Stipendium Exchange Scholarship, from the State of Lower Austria.  
2003 Top-Stipendium Scholarship, from the State of Lower Austria.

## CONFERENCE AND SEMINAR ORGANIZATION

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2025 Co-organizer annual BioBrillouin Meeting, Berlin, Germany; 60 participants  
2026 Program Committee Member, Optica Biophotonics Congress, Fort Lauderdale, USA  
2018/2026 Organizer EMBL Practical Course: Brillouin Microscopy; Heidelberg, 30 participants;  
2024 Nomination Committee Biophotonics – 2024 International Congress of Basic Science  
Since 2024 Program Committee Member SPIE Photonics Europe – Neurophotonics track  
2024/2026 Organizer EMBO Workshop: Imaging Mouse Development, Heidelberg & Janelia, USA  
2022 Organizer FENS 2022 workshop on “Multiscale deep and large-volume brain imaging”  
Since 2020 Co-Lead Organizer of the monthly EMBL-Janelia Bioimaging seminars (virtual)  
2020 Organizer COST Action BioBrillouin workshop on Instrumentation, Vienna, Austria  
2019/22-24 Organizer EMBL Undergraduate School: Visualizing Life, EMBL, Heidelberg, Germany  
2013 Co-organizer of the Quantum Effects in Biological Systems Conference 2013  
Institute of Molecular Pathology, Vienna, Austria; 54 participants;

## PUBLICATIONS

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Number of publications: **74**. Number of citations: **~7620**. H-index: **34**; ORCID ID: 0000-0003-3366-4703.

- **31 senior-author** (6 Nat. Methods, 1 Nat. Photonics, 1 Nat. Rev., 2 Nat. Comm., 6 Optica group)
- **12 first-author** (1 Nature, 4 Nat. Methods, 1 Nat. Physics, 1 Nat. Rev. Neuro, 3 Phys. Rev. Lett.)

**Original research publications** († denotes corresponding author; \*equal contribution)

1. R. Prevedel<sup>†</sup>, J. Ferrer Ortas, J. Kerr, J. Waters, M. Breckwoldt, B. Deneen, M. Monje, S. Soyska and V. Venkataramani<sup>†</sup>  
*Three-photon microscopy: an emerging optical technique for deep intravital brain imaging*  
**Nature Reviews Neuroscience** **26**, 521–537 (2025), <https://doi.org/10.1038/s41583-025-00937-y>;  
Selected for Cover Image
2. J.M. Gomez<sup>†</sup>, C. Bevilacqua, A. Thayambath, M. Leptin, J. Belmonte and R. Prevedel<sup>†</sup>.  
*Highly dynamic mechanical transitions in embryonic cell populations during Drosophila gastrulation.*  
**Nature Communications** **16**, 6473 (2025); **bioRxiv**: 2024.08.29.610383 (2024).

<https://www.nature.com/articles/s41467-025-61702-4>

3. K.A. Ibrahim<sup>†</sup>, C. Cathala, C. Bevilacqua, L. Feletti, R. Prevedel, H.A. Lashuel<sup>†</sup> and A. Radenovic<sup>†</sup>. *Self-Driving Microscopy Detects the Onset of Protein Aggregation and Enables Intelligent Brillouin Imaging*  
**Nature Communications** **16**, 6699 (2025). <https://www.nature.com/articles/s41467-025-60912-0>
4. G. Lemahieu, P. Moreno-Layseca, T. Hub, C. Bevilacqua, M.G. González, F. Pennarola, F. Colombo, L. Barzaghi, A. Palamidessi, L.-L. Homagk, S.F.H. Barnett, C. Selhuber-Unkel, R. Prevedel, X. Trepát, J.P. Spatz, J. Ivaska, G. Scita and E.A. Cavalcanti-Adam<sup>†</sup>. *RAB5A Promotes Active Fluid Wetting by Reprogramming Breast Cancer Spheroid Mechanics*  
**Advanced Science**, e03569 (2025). <https://doi.org/10.1002/adv.202503569>
5. C. Bevilacqua and R. Prevedel<sup>†</sup>. *Full-field Brillouin microscopy based on an imaging Fourier transform spectrometer*.  
**Nature Photonics** **19**, 494–501 (2025); **arXiv**: 2409.02092 (2024).  
<https://doi.org/10.1038/s41566-025-01619-y>
6. P. Bouvet, C. Bevilacqua, Y. Ambekar, G. Antonacci, J. Au, S. Caponi, S. Chagnon-Lessard, J. Czarske, T. Dehoux, D. Fioretto, Y. Fu, J. Guck, T. Hamann, D. Heinemann, T. Jähnke, H. Jean-Ruel, I. Kabakova, K. Koski, N. Koukourakis, D. Krause, S. La Cavera III, T. Landes, J. Li, J. Margueritat, M. Mattarelli, M. Monaghan, D.R. Overby, F. Perez-Cota, E. Pontecorvo, R. Prevedel, G. Ruocco, J. Sandercock, G. Scarcelli, F. Scarponi, C. Testi, P. Török, L. Vovard, W. Weninger, V. Yakovlev, S.-H. Yun, J. Zhang, F. Palombo, A. Bilenca, K. Elsayad<sup>†</sup>. *Consensus Statement on Brillouin Light Scattering Microscopy of Biological Materials*.  
**Nature Photonics** **19**, 681–691 (2025), **arXiv**:2411.11712 (2024);
7. S. Davis, J.-R. Sommernes, S. Hambura, L. Riedel, A. Gil, A. Ikmi, F. Ströhl and R. Prevedel<sup>†</sup>. *A mesoscopic axially swept oblique plane microscope for imaging of freely moving organisms with near-isotropic resolution*.  
**Biomedical Optics Express** **15**, 6715–6724 (2024); **Optica Open**:116719 (2024).
8. M. Schubert\*, S. Soyka\*, A. Tamimi\*, E. Maus, R. Denninger, N. Wissmann, E. Reyhan, S. Tetzlaff, C. Beretta, M. Drumm, J. Schroers, A. Steffens, J. Walshon, K. McCortney, S. Heiland, A. Golebiewska, F. Kurz, W. Wick, F. Winkler, A. Kreshuk, T. Kuner, C. Horbinski, R. Prevedel<sup>†</sup>,\* and V. Venkataramani<sup>†</sup>,\* *Deep intravital brain tumor imaging enabled by tailored three-photon microscopy and analysis*.  
**Nature Communications** **15**, 7383 (2024); **bioRxiv**:2023.06.17.545350 (2023)
9. A. Tamimi, M. Caldarola<sup>†</sup>, S. Hambura, J.C. Boffi, N. Noordzij, J.W.N. Los, A. Guardiani, H. Kooiman, L. Wang, C. Kieser, F. Braun, A. Fognini and R. Prevedel<sup>†</sup> *Deep mouse brain two-photon near-infrared fluorescence imaging using a superconducting nanowire single-photon detector array*.  
**ACS Photonics** **11**, 3960–3971 (2024); **ArXiv**: 2312.14042.
10. A. Cook, N. Kaydanov, B. Ugarte-Urbe, J.C. Boffi, G.B. Kamm, R. Prevedel<sup>†</sup>, C. Deo<sup>†</sup>. *Chemigenetic far-red labels and Ca<sup>2+</sup> indicators optimized for photoacoustic imaging*.  
**J. Am. Chem. Soc.** **146**, 23963–23971(2024); DOI: 10.1021/jacs.4c07080 **bioRxiv**: 2024.05.23.595278.
11. F. Xia\*, I. Leite\*, R. Prevedel and T. Chaigne. *Optical wavefront shaping in deep tissue using photoacoustic feedback*.  
**Journal of Physics: Photonics** **6**, 043005 (2024); **arXiv**:2407.04628;
12. J.C. Boffi<sup>†</sup>, B. Bathellier, H. Asari, and R. Prevedel<sup>†</sup>. *Effective sound localization coding by noisy populations of mouse inferior colliculus neurons revealed by fast volumetric imaging*.  
**eLife** **13**:RP97598 (2024); doi: 10.7554/eLife.97598.1; **bioRxiv**: 2022.08.19.504510.
13. A. Bilenca<sup>†</sup>, R. Prevedel<sup>†</sup> and G. Scarcelli<sup>†</sup>. *Current state of stimulated Brillouin scattering microscopy for the life sciences*.  
**Journal of Physics: Photonics** **6**, 032001 (2024); doi: 10.1088/2515-7647/ad5506
14. F. Ruperti, I. Becher\*, A. Stokkermans\*, L. Wang\*<sup>†</sup>, N. Marschlich\*, C. Potel, E. Maus, F. Stein, B. Drotleff, K. Schippers, M. Nickel, R. Prevedel, J.M. Musser<sup>†</sup>, M. M. Savitski<sup>†</sup>, and D. Arendt<sup>†</sup>

*Molecular profiling of sponge deflation reveals an ancient relaxant-inflammatory response.*  
**Current Biology** **34**, 1–15 (2024); **bioRxiv**: 2023.08.02.551666

15. F. Coraggio; M. Bhushan; S. Roumeliotis; C. Bevilacqua, R. Prevedel and G. Rapti<sup>†</sup>.  
*Lifelong interplay of HSP-proteostasis, ECM-cell junctions, and biomechanics ensures C. elegans astroglial architecture.*  
**Nature Communications** **15**, 2861 (2024); **bioRxiv**: 2023.10.28.564505 (2023).
16. F. Yang<sup>†</sup>, C. Bevilacqua, S. Hambura, A. Neves, A. Gopalan, K. Watanabe, M. Govendir, M. Bernabeu, J. Ellenberg, A. Diz-Muñoz, S. Köhler, G. Rapti, M. Jechlinger, and R. Prevedel<sup>†</sup>.  
*Pulsed stimulated Brillouin microscopy enables high-sensitivity mechanical imaging of live and fragile biological specimens.*  
**Nature Methods** **20**, 1971-1979 (2023); **bioRxiv**: 2022.11.10.515835 (2022).
17. C. Bevilacqua, J.M. Gomez, U.-M. Fiuza, C.J. Chan, L. Wang, S. Hambura, M. Eguren, J. Ellenberg, A. Diz-Muñoz, M. Leptin and R. Prevedel<sup>†</sup>.  
*High-resolution line-scan Brillouin microscopy for live-imaging of mechanical properties during embryo development.*  
**Nature Methods** **20**, 755–760 (2023). **bioRxiv**: 2022.04.25.489364 (2022). [doi:10.1038/s41592-023-01822-1](https://doi.org/10.1038/s41592-023-01822-1); News & Views: <https://doi.org/10.1038/s41592-023-01843-w>  
Selected as one of the 10 biggest science stories of 2022 by The Guardian.  
<https://tinyurl.com/375dspvwa>
18. R. Singh, K. Subramanian, R.M. Power, A. Paix, A. Gil, A. Ikmi, and R. Prevedel<sup>†</sup>.  
*Oblique plane microscope for mesoscopic imaging of freely moving organisms with cellular resolution.*  
**Optics Express** **31**, 2292-2301 (2023). **bioRxiv**: 2022.07.15.500249 (2022).
19. C. Couteau<sup>†</sup>, S. Barz, T. Durt, T. Gerrits, J. Huwer, R. Prevedel, J. Rarity, A. Shields, and G. Weihs. *Applications of single photons in quantum metrology, biology and the foundations of quantum physics.*  
**Nature Reviews Physics** **5**, 354–363 (2023); [doi.org/10.1038/s42254-023-00589-w](https://doi.org/10.1038/s42254-023-00589-w).
20. C. Couteau<sup>†</sup>, S. Barz, T. Durt, T. Gerrits, J. Huwer, R. Prevedel, J. Rarity, A. Shields, and G. Weihs. *Applications of single photons to quantum communication and computing.*  
**Nature Reviews Physics** **5**, 326–338 (2023); [doi.org/10.1038/s42254-023-00583-2](https://doi.org/10.1038/s42254-023-00583-2).
21. J. Czuchnowski<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*Transfer function asymmetry in Fabry-Pérot pressure sensors.*  
**Optics Letters** **47**, 6089-6092 (2022). **ArXiv**: 2109.02443 (2021).
22. A. Paix, S. Basu, P. Steenbergen, R. Singh, R. Prevedel and A. Ikmi<sup>†</sup>.  
*Endogenous tagging of multiple cellular components in the sea anemone Nematostella vectensis.*  
**PNAS** **120**, e2215958120 (2022).
23. J. Czuchnowski<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*Zernike mode rescaling extends capabilities of adaptive optics for microscopy.*  
**Optics Continuum** **12**, 2600-2606 (2022). **ArXiv**: 2110.14233 (2021).
24. Stokkermans, A. Chakrabarti, K. Subramanian, L. Wang, S. Yin, P. Moghe, P. Steenbergen, G. Mönke, T. Hiiragi, R. Prevedel, L. Mahadevan<sup>†</sup> and A. Ikmi<sup>†</sup>.  
*Muscular hydraulics drive larva-polyp morphogenesis*  
**Current Biology** **32**, 1-12 (2022). **bioRxiv**: 2021.08.19.456976 (2021).
25. J. Czuchnowski and R. Prevedel<sup>†</sup>.  
*Comparing free-space and fibre-coupled detectors for Fabry-Pérot based all-optical photoacoustic tomography.*  
**Journal of Biomedical Optics** **27**, 046001 (2022). **ArXiv**: 2112.03081 (2021).
26. L. Streich, J. Boffi, L. Wang, K. Alhalaseh, M. Barbieri, R. Rehm, S. Deivasigamani, C. Gross, A. Agarwal, and R. Prevedel<sup>†</sup>.  
*High-resolution structural and functional deep brain imaging using adaptive optics three-photon microscopy*  
**Nature Methods** **18**, 1253-1258 (2021). **bioRxiv**:2021.01.12.426323 Selected for Technology Feature by Nature: <https://www.nature.com/articles/d41586-023-00336-2>

27. C.C. Chan<sup>†</sup>, C. Bevilacqua, and R. Prevedel<sup>†</sup>.  
*Mechanical mapping of mammalian follicle development using Brillouin microscopy.*  
**Communications Biology** **4**, 1133 (2021). bioRxiv:2021.02.21.432113
28. J. Czuchnowski<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*Cross-compensation of Zernike aberrations in Gaussian beam optics.*  
**Optics Letters** **46**, 3480-3483 (2021). ArXiv:2102.05383
29. N. Wagner\*, F. Beuttenmueller\*, N. Norlin, J. Gierten, J. Wittbrodt, M. Weigert, L. Hufnagel, R. Prevedel<sup>\*,†</sup> and A. Kreshuk<sup>\*,†</sup>.  
*Deep learning-enhanced light-field imaging with continuous validation.*  
**Nature Methods** **18**, 557–563 (2021). bioRxiv:228924; \*Equal contribution  
News & Views: <https://www.nature.com/articles/s41592-021-01151-1>
30. J. Czuchnowski and R. Prevedel<sup>†</sup>.  
*Adaptive optics enhanced sensitivity in Fabry-Pérot based photoacoustic tomography*  
**Photoacoustics** **23**, 100276 (2021); bioRxiv:2021.01.13.426260v1.
31. M.S. Ozturk, M.G. Montero, L. Wang, L. Chaible, M. Jechlinger<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*In-vivo monitoring and quantification of breast cancer growth dynamics with non-invasive intravital mesoscopic fluorescence molecular tomography*  
**Communications Biology** **4**, 556 (2021). bioRxiv:234898;
32. C. Morelli\*, L. Castaldi\*, S.J. Brown, L.L. Streich, A. Websdale, F.J. Taberner, B. Cerreti, A. Barenghi, K.M. Blum, J. Sawitzke, T. Frank, L. Steffens, B. Doleschall, J. Serrao, S.G. Lechner, R. Prevedel, and P.A. Heppenstall<sup>†</sup>.  
*Identification of a population of peripheral sensory neuron that regulates blood pressure*  
**Cell Reports** **35**, 109191 (2021); bioRxiv:909960;
33. D. Li, H. Zhang, L. L. Streich, P. Lu, L. Wang, D. Zhu, R. Prevedel<sup>†</sup> and J. Qian<sup>†</sup>, *AIE-nanoparticle assisted ultra-deep microscopy in the in vivo mouse brain under 1300-nm excitation,*  
**Materials Chemistry Frontiers** **5**, 3201-3208 (2021). bioRxiv:2020.12.25.424420
34. J. Czuchnowski and R. Prevedel<sup>†</sup>.  
*Improving the sensitivity of planar Fabry-Pérot cavities via adaptive optics and mode filtering*  
**Advanced Optical Materials** 2001337 (2020); ArXiv:2007.09769
35. S. Gross-Thebing\*, L. Truszkowski\*, D. Tenbrinck, H. Sánchez-Iranzo, C., Camelo, K.J. Westerich, A. Singh, P. Maier, J. Prengel, P. Lange, J. Hüwel, F. Gaede, R. Sasse, B. Vos, T. Betz, M. Matis, R. Prevedel, S. Luschnig, A. Diz-Muñoz, M. Burger<sup>†</sup>, E. Raz<sup>†</sup>  
*Using migrating cells as probes to illuminate features in live embryonic tissues.*  
**Science Advances** **6**, eabc5546 (2020);
36. G. Antonacci, T. Beck, A. Bilenca, J. Czarske, K. Elsayad<sup>†</sup>, J. Guck, K. Kim, B. Krug, F. Palombo, R. Prevedel<sup>†</sup>, and G. Scarcelli.  
*Recent progress and current opinions in Brillouin Microscopy for life science application*  
**Biophys. Rev.** **12**, 615–624 (2020). Note: Authors were arranged alphabetically.
37. H. Sánchez-Iranzo\*, C. Bevilacqua\*, A. Diz-Muñoz<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*A 3D Brillouin microscopy dataset of the in-vivo zebrafish eye*  
**Data in Brief** **30**, 105427 (2020). \*Joint first authors
38. F. Geisler, R. Coch, C. Richardson, M. Goldberg, C. Bevilacqua, R. Prevedel and R. Leube<sup>†</sup>.  
*Intestinal intermediate filament polypeptides in C. elegans: Common and isotype-specific contributions to intestinal ultrastructure and function*  
**Scientific Reports** **10**, 3142 (2020).
39. R. Prevedel<sup>†</sup>, A. Diz-Muñoz<sup>†</sup>, G. Ruocco and G. Antonacci.  
*Brillouin microscopy - an emerging tool for mechanobiology*  
**Nature Methods** **16**, 969–977 (2019). ArXiv:1901.02006
40. N. Wagner\*, N. Norlin\*, J. Gierten, G. de Medeiros, B. Balázs, J. Wittbrodt, L. Hufnagel<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*Instantaneous isotropic volumetric imaging of fast biological processes*  
**Nature Methods** **16**, 497–500 (2019). bioRxiv:459370.

41. C. Bevilacqua\*, H. Sánchez-Iranzo\*, D. Richter, A. Diz-Muñoz<sup>†</sup> and R. Prevedel<sup>†</sup>.  
*Imaging mechanical properties of sub-micron ECM in live zebrafish using Brillouin microscopy*  
**Biomed. Opt. Exp.** **10**, 1420-1431 (2019). bioRxiv:491803. \*Joint first authors
42. J. Qi, C. Sun, D. Li, H. Zhang, W. Yu, A. Zebibula, J. W. Y. Lam, W. Xi, L. Zhu, F. Cai, P. Wei, C. Zhu, R. T. K. Kwok, L. L. Streich, R. Prevedel, J. Qian, and B. Z. Tang.  
*Aggregation-Induced Emission Luminogen with Near-Infrared-II Excitation and Near-Infrared-I Emission for Ultradeep Intravital Two-Photon Microscopy.*  
**ACS Nano** **8**, 7936–7945 (2018).
43. R. Prevedel, A.J. Verhoef, A.J. Pernia-Andrade, S. Weisenburger, B.S. Huang, T. Nöbauer, A. Fernandez, J.E. Delcour, P. Golshani, A. Baltuska and A. Vaziri.  
*Fast volumetric calcium imaging across multiple cortical layers using sculpted light.*  
**Nature Methods** **13**, 1021–1028 (2016).
44. J. N. Tinsley\*, M. I. Molodtsov\*, R. Prevedel, D. Wartmann, J. Espigulé- Pons, M. Lauwers, and A. Vaziri.  
*Direct Detection of a Single Photon by Humans.*  
**Nature Communications** **7**, 12172 (2016).
45. P. Rupprecht, R. Prevedel, F. Grössl, W.E. Haubensak, and A. Vaziri.  
*Optimizing and extending light-sculpting microscopy for fast functional imaging in neuroscience.*  
**Biomedical Optics Express** **6**, 353-368 (2015); ArXiv:1501.03082
46. R. Prevedel\*, Y.-G. Yoon\*, M. Hoffmann, N. Pak, G. Wetzstein, S. Kato, T. Schrödel, R. Raskar, M. Zimmer, E.S. Boyden, and A. Vaziri.  
*Simultaneous whole-animal 3D-imaging of neuronal activity using light field microscopy.*  
**Nature Methods** **11**, 727–730 (2014); ArXiv:1401.5333; selected for Cover
47. T. Scheidl, F. Tiefenbacher, R. Prevedel, F. Steinlechner, R. Ursin and A. Zeilinger.  
*Crossed crystal scheme for femto-second pulsed entangled photon generation in periodically poled potassium titanyl phosphate.*  
**Phys. Rev. A** **89** 042324 (2014) ArXiv:1404.6914
48. C. Erven, E. Meyer-Scott, K. Fisher, J. Lavoie, B. L. Higgins, Z. Yan, C. J. Pugh, J.-P. Bourgoin, R. Prevedel, L. K. Shalm, L. Richards, N. Gigov, R. Laflamme, G. Weihs, T. Jennewein, and K.J. Resch.  
*Experimental Three-Particle Quantum Nonlocality under Strict Locality Conditions.*  
**Nature Photonics** **8**, 292 (2014) ArXiv:1309.1379
49. K. Fisher, A. Broadband, L. K. Shalm, Z. Yan, J. Lavoie, R. Prevedel, T. Jennewein, and K.J. Resch.  
*Quantum computing on encrypted data.*  
**Nature Communications** **5**, 3074 (2014) ArXiv:1309.2586
50. T. Schrödel\*, R. Prevedel\*, K. Aumayr, M. Zimmer and A. Vaziri.  
*Brain- wide 3D imaging of neuronal activity in *Caenorhabditis elegans* with sculpted light.*  
**Nature Methods** **10**, 1013 (2013) ArXiv:1406.1603 \*Equal contribution
51. M. Mazurek\*, K. Schreiter\*, R. Prevedel, R. Kaltenbaek and K.J. Resch.  
*Dispersion-cancelled biological imaging with quantum-inspired interferometry.*  
**Scientific Rep.** **3**, 1582 (2013)
52. K. Fisher, R. Prevedel, R. Kaltenbaek and K.J. Resch.  
*Optimal linear optical implementation of a single-qubit damping channel.*  
**New J. of Physics** **14**, 033016 (2012) ArXiv:1109.2070
53. R. Prevedel, K.M. Schreiter, J. Lavoie and K. J. Resch.  
*A classical analogue for dispersion cancellation of entangled photons with local detection.*  
**Phys. Rev. A** **84**, 051803(R) (2011) ArXiv:1105.3956
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#### **Book Chapters (peer-reviewed)**

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### Electronic Preprints

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**bioRxiv**: 2025.10.17.683093 (2025). *In Review at Photoacoustics.*
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85. G. Paci, E. Haas, L. Kornau, D. Marchetti, L. Wang, [R. Prevedel](#), and A. Szmolenszky<sup>†</sup>.  
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A. Vaziri, P. Rupprecht and [R. Prevedel](#),  
*Recording dynamics of cellular processes.*  
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*Three-dimensional video imaging using light field microscopy.*  
U.S. Patent Application 62/105,595, filed January 20, 2015. Patent Pending.

#### SCIENTIFIC NETWORKS

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2017 - 2022	Management Committee Member of the COST Action Network “BioBrillouin” (CA16124) and Work Group Leader (WG3: Instrumentation) - collaborative network in the field of Brillouin spectroscopy applied to life sciences and health related problems.
2018 - 2023	Management Committee Member of the COST Action Network “COMULIS” (CA17121) – Correlated Multimodal Imaging in Life Sciences
Since 2022	Treasurer, International BioBrillouin Society
2023	Guest Editor for Focus Issue in J. Phys. Photonics on Brillouin Scattering in Biology

#### INSTITUTIONAL RESPONSIBILITIES

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Since 2016	Member of 8 internal committees at EMBL (incl. Animal Welfare IACUC).
Since 2021	Chair of 2 internal committees at EMBL (Microscopy facilities, Workshops)
Since 2016	Member of 15 Thesis Advisory Committees and 8 PhD defense committees.
Since 2018	Member of 4 Faculty and 9 Service position recruitment panels at EMBL.
Since 2018	Career mentor for 3 EMBL postdocs (within EIPOD 4 program)
Since 2024	Career mentor within the DZL Academy Mentoring Program
Since 2024	Member of the EMBL Joint Advisory Appeals Board
Since 2025	Representative EMBL Member of ESA’s upcoming Saturn Flagship mission

## **PROFESSIONAL MEMBERSHIPS**

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Optical Society of America  
SPIE (Society of Photo-Optical Instrumentation Engineers)  
International BioBrillouin Society