

# Simon Gröblacher

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## Current positions

- 04/2021– CEO and Co-Founder, **QphoX**, Delft, The Netherlands  
Quantum transduction.
- 03/2021– Professor of Quantum Physics, **Delft University of Technology**, Delft, The Netherlands  
Quantum optomechanics with photonic crystal cavities.

## Previous positions

- 06/2018–10/2021 Director and Co-Founder, **Nenso Solutions**, Delft, The Netherlands  
Nanofabrication and High-Tech Consultancy.
- 12/2017–02/2021 Associate Professor, **Delft University of Technology**, Delft, The Netherlands  
Quantum optomechanics with photonic crystal cavities.
- 11/2014–11/2017 Assistant Professor, **Delft University of Technology**, Delft, The Netherlands  
Quantum optomechanics with photonic crystal cavities.
- 04/2011–08/2014 Post-Doctoral Fellow, **California Institute of Technology**, Pasadena, CA, USA  
Optomechanics, silicon nanophotonics. Advisor: Prof. Oskar Painter
- 09/2013–08/2014 Post-Doctoral Fellow, **University of Vienna**, Vienna, Austria  
01/2011–03/2011 Optomechanics, macroscopic quantum states, quantum optics. Advisor: Prof. Markus Aspelmeyer
- 02/2006–01/2011 Research & Teaching Assistant, **Austrian Academy of Sciences / University of Vienna**, Vienna, Austria  
Optomechanics, macroscopic quantum states, quantum optics. Advisors: Prof. Markus Aspelmeyer & Prof. Anton Zeilinger
- 10/2004–12/2005 Scientific Assistant, **University of Vienna**, Vienna, Austria  
Quantum information processing in higher dimensions, entangled photons, orbital angular momentum. Advisor: Prof. Anton Zeilinger
- 01/2004–09/2004 Research Assistant, **Universidade Federal do Rio de Janeiro**, Rio de Janeiro, RJ, Brazil  
Research stay in the quantum optics group of Prof. Paulo H. S. Ribeiro

## Education

- 2006–2011 **Ph.D., Physics**, *University of Vienna*, Vienna, Austria, *with distinction*
- 2001–2005 **Masters, Physics**, *University of Vienna*, Vienna, Austria, *with distinction*
- 06/1999 **Austrian Matura**, *Bundesrealgymnasium Ringstraße*, Krems, Austria, *with distinction*
- 07/1997–06/1998 **Exchange year**, *American Field Service (AFS)*, Colégio Sagrado Coração de Jesus, Ijuí, RS, Brazil
- 1991–1999 **Secondary school**, *Bundesrealgymnasium Ringstraße*, Krems, Austria

## PhD thesis

- Title *Quantum opto-mechanics with micromirrors: combining nano-mechanics with quantum optics*
- Supervisors Prof. Markus Aspelmeyer & Prof. Anton Zeilinger  
University of Vienna (2010)

## Diploma thesis

- Title *Experimental Investigation of Quantum Communication Protocols in Higher Dimensions*
- Supervisors Prof. Anton Zeilinger  
University of Vienna (2005)

## Funding

- 01/2025–12/2034 **Summit Grant**, Netherlands Organisation for Scientific Research (NWO)
- 01/2024–12/2028 **Vici Grant**, Netherlands Organisation for Scientific Research (NWO)
- 05/2023–04/2028 **Kavli Institute Innovation Award**, Kavli Foundation; Coordinator
- 09/2021–12/2028 **Quantum Delta NL**, KAT-3 Mechanical Sensing Testbed; Project Lead

03/2021–02/2026 **Consolidator Grant**, European Research Council (ERC)  
11/2019–10/2021 **Quantum/Nano startimpulsprogramma**, Nationale Wetenschaps Agenda  
08/2019–07/2024 **Vrij Programma**, Netherlands Organisation for Scientific Research (NWO); Coordinator  
05/2019–05/2020 **Attract Grant**, EU Research and Innovation Programme  
01/2017–12/2020 **Projectruimte**, Foundation for Fundamental Research on Matter (FOM)  
11/2016–10/2021 **Vidi Grant**, Netherlands Organisation for Scientific Research (NWO)  
03/2016–02/2021 **Starting Grant**, European Research Council (ERC)  
07/2015–06/2019 **Projectruimte**, Foundation for Fundamental Research on Matter (FOM)  
05/2015–04/2019 **Frontiers of Nanoscience**, TU Delft / Leiden University  
11/2014–10/2019 **Startup Grant**, Delft University of Technology

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## Committees

10/2023–09/2028 **International Scientific Advisory Board QUEENTEC**, Czech Academy of Sciences  
09/2023–07/2024 **Chair Exam committee MSc Quantum Information Science & Technology (QIST)**, TU Delft  
10/2019–08/2022 **Chair Faculty Meeting Department of Quantum Nanoscience**, TU Delft  
10/2018–09/2021 **Exam committee BSc Applied Physics**, TU Delft  
01/2017–09/2019 **Management Team Department of Quantum Nanoscience**, TU Delft  
06/2017–07/2017 **Jury Projectruimte Grant**, NWO  
09/2015–06/2017 **Co-Organizer Werkbepreking Department of Quantum Nanoscience**, TU Delft  
02/2015–03/2015 **Jury Projectruimte Grant**, FOM

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## Teaching

since 2018/2019 **Graduate course on quantum optics**  
since 2015/2016 **Undergraduate introductory course on quantum mechanics**  
since 2014/2015 **Undergraduate lab course on optomechanics**

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## Additional work experience

Peer review • Referee for Nature, Science, Nature Phys., Phys. Rev. Lett., Phys. Rev. X, among others.

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## Fellowships

09/2011–08/2014 **Marie Curie International Outgoing Fellowship**, European Commission  
07/2011–06/2012 **Fellowship of the Institute for Quantum Information and Matter**, California Institute of Technology  
01/2008–12/2009 **DOC fellowship**, Austrian Academy of Sciences  
10/2007–01/2011 **Doctoral programme Complex Quantum Systems (CoQuS)**, Austrian Science Fund (FWF)  
01/2004–09/2004 **Top-Stipendium Exchange Scholarship**, State of Lower Austria

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## Awards

09/2020 **Scientific Appreciation Award**, *for excellence in research*, State of Lower Austria  
10/2014 **ASciNA award**, *for excellent scientific work*, Austrian Scientists & Scholars in North America  
12/2012 **Loschmidt Prize**, *for distinguished theses*, Austrian Chemical-Physical Society  
03/2012 **Doc.Award 2011**, *for outstanding doctoral theses*, University of Vienna & City of Vienna  
12/2011 **Award of Excellence**, *for excellent and outstanding dissertations*, Austrian Ministry for Science and Research  
11/2011 **Scientific Recognition Award**, *for excellence in research*, State of Lower Austria  
05/2011 **PhD Thesis Prize**, *in recognition of the highest level of excellence*, European Physical Society  
11/2010 **ESG-Nano-Award 2010**, *for scientific activities in the field of nanosciences and nanotechnologies*, Erwin Schrödinger Society for Nanosciences (ESG)  
03/2010 **Bank Austria Research Award 2010**, *for particularly interesting and promising research projects*, Bank Austria Foundation for Science and Research at the University of Vienna  
10/2006 **INiTS Award 2006**, *for innovative applied research*, Founder Service of the Austrian Universities (INiTS)  
06/2003 **Top-Stipendium Scholarship**, State of Lower Austria

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## Languages

German	native speaker
English	fluent, written and spoken
Portuguese	fluent, written and spoken
Spanish	good knowledge, written and spoken
French	basic knowledge, written and spoken

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## Publications

Publications	78 publications in peer-reviewed journals – incl. 7 Nature, 1 Science, 6 Nature Phys., 1 Nature Photon., 1 Nature Nanotechnol., 1 Science Adv., 1 Phys. Rev. X, 9 Phys. Rev. Lett., 3 Nano Lett., 2 Optica Total citations: 14,200; h-index: 41 (as of March 2026, Google Scholar).
Presentations	more than 150 invited talks at conferences or seminars at international venues.

## Peer-reviewed journals

\* indicates equal contribution

1. L. Chen\*, A.R. Korsch\*, C. Moreno Kersul, R. Benevides, Y. Yu, T.P. Mayer Alegre, and [S. Gröblacher](#)  
*Low-noise optomechanical single phonon-photon conversion for quantum networks*  
Nature Commun. **17**, 1187 (2026).
2. Z. Li, B. Lopez-Rodriguez, N. Sharma, R. van der Kolk, T. Scholte, H. Smedes, R. T. Erdogan, J. Chang, H. Voncken, J. Gao, A. W. Elshaari, [S. Gröblacher](#), and I. Esmail Zadeh  
*Heterogeneous integration of silicon nitride and amorphous silicon carbide photonics*  
APL Photonics **10**, 106116 (2025).
3. A. Zivari\*, N. Fiaschi\*, L. Scarpelli\*, M. Jansen, R. Burgwal, E. Verhagen, and [S. Gröblacher](#)  
*A single-phonon directional coupler*  
Optica Quantum **3**, 445–451 (2025).
4. A.R. Korsch, N. Fiaschi, and [S. Gröblacher](#)  
*A cryogenic chamber setup for superfluid helium experiments with optical fiber and electrical access*  
Rev. Sci. Instrum. **96**, 083903 (2025).
5. G. Da Prato, Y. Yu, R. Bode, and [S. Gröblacher](#)  
*Step-by-step design guide of a cryogenic three-axis vector magnet*  
Rev. Sci. Instrum. **96**, 065208 (2025).
6. N. Fiaschi, L. Scarpelli, A.R. Korsch, A. Zivari, and [S. Gröblacher](#)  
*Time-resolved spectral diffusion of a multimode mechanical memory*  
Phys. Rev. Lett. **134**, 243604 (2025).
7. T.C. van Thiel, M.J. Weaver, F. Berto, P. Duivestein, M. Lemang, K. Schuurman, M. Žemlička, F. Hijazi, A.C. Bernasconi, C. Ferrer, E. Cataldo, E. Lachman, M. Field, Y. Mohan, F.K. de Vries, C.C. Bultink, J.C. van Oven, J.Y. Mutus, R. Stockill, and [S. Gröblacher](#)  
*Optical readout of a superconducting qubit using a piezo-optomechanical transducer*  
Nature Phys. **21**, 401–405 (2025).
8. B. Lopez-Rodriguez, N. Sharma, Z. Li, R. van der Kolk, J. van der Boom, T. Scholte, J. Chang, [S. Gröblacher](#), and I. Esmail Zadeh  
*Magic silicon dioxide for widely tunable photonic integrated circuits*  
ACS Photonics **12**, 1321–1328 (2025).
9. Z. Li, N. Sharma, B. Lopez-Rodriguez, R. van der Kolk, T. Scholte, H. Voncken, J. van der Boom, [S. Gröblacher](#), and I. Esmail Zadeh  
*Heterogeneous integration of amorphous silicon carbide on thin film lithium niobate*  
APL Photonics **10**, 016120 (2025).
10. X. Yao, M.H.J. de Jong, J. Li, and [S. Gröblacher](#)  
*Long-range optomechanical interactions in SiN membrane arrays*  
Phys. Rev. X **15**, 011014 (2025).
11. H.-T. Li, Z.-Y. Fan, H.-B. Zhu, [S. Gröblacher](#), and J. Li  
*Microwave-optics entanglement via coupled opto- and magnomechanical microspheres*  
Laser Photonics Rev., 2401348 (2024).
12. A.R. Korsch, N. Fiaschi, and [S. Gröblacher](#)  
*Phononic crystals in superfluid thin-film helium*  
Phys. Rev. Applied **22**, L041005 (2024).
13. J. Chang, W. Ji, X. Yao, A.J. van Run, and [S. Gröblacher](#)  
*Broadband, High-Reflectivity Dielectric Mirrors at Wafer Scale: Combining Photonic Crystal and Metasurface Architectures for Advanced Lightsails*  
Nano Lett. **24**, 6689–6695 (2024).
14. Z.-Y. Fan, L. Qiu, [S. Gröblacher](#), and J. Li  
*Microwave-Optics Entanglement via Cavity Optomagnomechanics*  
Laser Photonics Rev. 2200866 (2023).
15. Y. Yu, D. Oser, G. Da Prato, E. Urbinati, J. Carrasco Ávila, Y. Zhang, P. Remy, S. Marzban, [S. Gröblacher](#), and W. Tittel  
*Frequency tunable, cavity-enhanced single erbium quantum emitter in the telecom band*  
Phys. Rev. Lett. **131**, 170801 (2023).
16. M. J. Weaver\*, P. Duivestein\*, A. C. Bernasconi\*, S. Scharmer\*, M. Lemang, T. C. van Thiel, F. Hijazi, B. Hensen, [S. Gröblacher](#), and R. Stockill  
*An integrated microwave-to-optics interface for scalable quantum computing*  
Nature Nanotechnol. **19**, 166–172 (2024).

17. B. Lopez-Rodriguez, R. Van Der Kolk, S. Aggarwal, N. Sharma, Z. Li, D. Van Der Plaats, T. Scholte, J. Chang, [S. Gröblacher](#), S. F. Pereira, H. Bhaskaran, and I. Esmail Zadeh  
*High-quality amorphous Silicon Carbide for hybrid photonic integration deposited at a low temperature*  
ACS Photonics **10**, 3748–3754 (2023).
18. A. G. Primo, P. V. Pinho, R. Benevides, [S. Gröblacher](#), G. S. Wiederhecker, and T. P. Mayer Alegre  
*Dissipative optomechanics in high-frequency nanomechanical resonators*  
Nature Commun. **14**, 5793 (2023).
19. M. H. J. de Jong, A. Cupertino, D. Shin, [S. Gröblacher](#), F. Alijani, P. G. Steeneken, and R. Norte  
*Beating ringdowns of near-degenerate mechanical resonances*  
Phys. Rev. Applied **20**, 024053 (2023).
20. J. Guo, J. Chang, X. Yao, and [S. Gröblacher](#)  
*Active-feedback quantum control of an integrated low-frequency mechanical resonator*  
Nature Commun. **14**, 4721 (2023).
21. W. Ji, J. Chang, H.-X. Xu, J. Rong Gao, [S. Gröblacher](#), H. P. Urbach, and A. J. L. Adam  
*Recent advances in metasurface design and quantum optics applications with machine learning, physics-informed neural networks, and topology optimization methods*  
Light Sci. Appl. **12**, 169 (2023).
22. C. M. Kersul, R. Benevides, F. Moraes, G. H. M. de Aguiar, A. Wallucks, [S. Gröblacher](#), G. S. Wiederhecker, and T. P. Mayer Alegre  
*Silicon anisotropy in a bi-dimensional optomechanical cavity*  
APL Photonics **8**, 056112 (2023).
23. Y. Li, F. A. Gerritsma, S. Kurdi, N. Codreanu, [S. Gröblacher](#), R. Hanson, R. Norte, and T. van der Sar  
*A Fiber-Coupled Scanning Magnetometer with Nitrogen-Vacancy Spins in a Diamond Nanobeam*  
ACS Photonics **10**, 1859–1865 (2023).
24. T. Luschmann, A. Jung, S. Geprägs, F. X. Haslbeck, A. Marx, S. Filipp, [S. Gröblacher](#), R. Gross, and H. Huebl  
*Surface acoustic wave resonators on thin film piezoelectric substrates in the quantum regime*  
Mater. Quantum Technol. **3**, 021001 (2023).
25. M. H. J. de Jong, A. Ganesan, A. Cupertino, [S. Gröblacher](#), and R. Norte  
*Mechanical overtone frequency combs*  
Nature Commun. **14**, 1458 (2023).
26. A. Zivari\*, N. Fiaschi\*, R. Burgwal, E. Verhagen, R. Stockill, and [S. Gröblacher](#)  
*On-chip distribution of quantum information using traveling phonons*  
Science Adv. **8**, eadd2811 (2022).
27. J. Guo and [S. Gröblacher](#)  
*Coherent feedback in optomechanical systems in the sideband-unresolved regime*  
Quantum **6**, 848 (2022).
28. R. Stockill\*, M. Forsch\*, F. Hijazi, G. Beaudoin, K. Pantzas, I. Sagnes, R. Braive, and [S. Gröblacher](#)  
*Ultra-low-noise Microwave to Optics Conversion in Gallium Phosphide*  
Nature Commun. **13**, 6583 (2022).
29. J. Guo and [S. Gröblacher](#)  
*Integrated optical-readout of a high-Q mechanical out-of-plane mode*  
Light Sci. Appl. **11**, 282 (2022).
30. A. Zivari, R. Stockill, N. Fiaschi, and [S. Gröblacher](#)  
*Non-classical mechanical states guided in a phononic waveguide*  
Nature Phys. **18**, 789–793 (2022).
31. M. H. J. de Jong, M. A. ten Wolde, A. Cupertino, [S. Gröblacher](#), P. G. Steeneken, and R. Norte  
*Mechanical dissipation by substrate-mode coupling in SiN resonators*  
Appl. Phys. Lett. **121**, 032201 (2022).
32. M. H. J. de Jong\*, J. Li\*, C. Gärtner, R. A. Norte, and [S. Gröblacher](#)  
*Coherent mechanical noise cancellation and cooperativity competition in optomechanical arrays*  
Optica **9**, 170–176 (2022).
33. S. Barzanjeh, A. Xuereb, [S. Gröblacher](#), M. Paternostro, C.A. Regal, and E. Weig  
*Optomechanics for quantum technologies*  
Nature Phys. **18**, 15–24 (2022).
34. N. Fiaschi\*, B. Hensen\*, A. Wallucks, R. Benevides, J. Li, T. P. Mayer Alegre, and [S. Gröblacher](#)  
*Optomechanical quantum teleportation*  
Nature Photon. **15**, 817–821 (2021).
35. J. Li and [S. Gröblacher](#)  
*Entangling the vibrational modes of two massive ferromagnetic spheres using cavity magnomechanics*  
Quantum Sci. Technol. **6**, 024005 (2021).

36. I. Marinković\*, M. Drimmer\*, B. Hensen, and S. Gröblacher  
*Hybrid integration of silicon photonic devices on lithium niobate for optomechanical wavelength conversion*  
Nano Lett. **21**, 529–535 (2021).
37. M. Leeuwenhoek, F. Groenewoud, K. van Oosten, T. Benschop, M. P. Allan, and S. Gröblacher  
*Fabrication of on-chip probes for double-tip scanning tunneling microscopy*  
Microsyst. Nanoeng. **6**, 99 (2020).
38. Y. Chu and S. Gröblacher  
*A perspective on hybrid quantum opto- and electromechanical systems*  
Appl. Phys. Lett. **117**, 150503 (2020).
39. M. Leeuwenhoek, S. Gröblacher, M. P. Allan, and Y. M. Blanter  
*Modeling Green's function measurements with two-tip scanning tunneling microscopy*  
Phys. Rev. B **102**, 115416 (2020).
40. J. Li, A. Wallucks, R. Benevides, N. Fiaschi, B. Hensen, T. P. Mayer Alegre, and S. Gröblacher  
*Proposal for optomechanical quantum teleportation*  
Phys. Rev. A **102**, 032402 (2020).
41. A. Wallucks, I. Marinković, B. Hensen, R. Stockill, and S. Gröblacher  
*A quantum memory at telecom wavelengths*  
Nature Phys. **16**, 772–777 (2020).
42. J. Li and S. Gröblacher  
*Stationary quantum entanglement between a massive mechanical membrane and a low frequency LC circuit*  
New J. Phys. **22**, 063041 (2020).
43. M. Forsch\*, R. Stockill\*, A. Wallucks, I. Marinković, C. Gärtner, R. A. Norte, F. van Otten, A. Fiore, K. Srinivasan, and S. Gröblacher  
*Microwave-to-optics conversion using a mechanical oscillator in its quantum ground state*  
Nature Phys. **16**, 69–74 (2020).
44. J. Guo, R.A. Norte, and S. Gröblacher  
*Feedback cooling of a room temperature mechanical oscillator close to its motional groundstate*  
Phys. Rev. Lett. **123**, 223602 (2019).
45. R. Stockill\*, M. Forsch\*, G. Beaudoin, K. Pantzas, I. Sagnes, R. Braive, and S. Gröblacher  
*Gallium phosphide as a piezoelectric platform for quantum optomechanics*  
Phys. Rev. Lett. **123**, 163602 (2019).
46. M. Leeuwenhoek, R. A. Norte, K. M. Bastiaans, D. Cho, I. Battisti, Y. M. Blanter, S. Gröblacher, and M. P. Allan  
*Nanofabricated tips for device-based scanning tunneling microscopy*  
Nanotechnology **30**, 335702 (2019).
47. L. Magrini, R. A. Norte, R. Riedinger, I. Marinković, D. Grass, U. Deliđ, S. Gröblacher, S. Hong, and M. Aspelmeyer  
*Near-field coupling of a levitated nanoparticle to a photonic crystal cavity*  
Optica **5**, 1597–1602 (2018).
48. I. Marinković\*, A. Wallucks\*, R. Riedinger, S. Hong, M. Aspelmeyer, and S. Gröblacher  
*An optomechanical Bell test*  
Phys. Rev. Lett. **121**, 220404 (2018).
49. C. Gärtner\*, J. P. Moura\*, W. Haaxman, R. A. Norte, and S. Gröblacher  
*Integrated optomechanical arrays of two high reflectivity SiN membranes*  
Nano Lett. **18**, 7171–7175 (2018).
50. M. Sanz, W. Wieczorek, S. Gröblacher, and E. Solano  
*Electro-mechanical Casimir effect*  
Quantum **2**, 91 (2018).
51. R. A. Norte, M. Forsch, A. Wallucks, I. Marinković, and S. Gröblacher  
*Platform for measurements of the Casimir force between two superconductors*  
Phys. Rev. Lett. **121**, 030405 (2018).
52. J. Li, S. Gröblacher, S.-Y. Zhu, and G. S. Agarwal  
*Generation and detection of non-Gaussian phonon-added coherent states in optomechanical systems*  
Phys. Rev. A **98**, 011801(R) (2018).
53. R. Riedinger\*, A. Wallucks\*, I. Marinković\*, C. Löschnauer, M. Aspelmeyer, S. Hong, and S. Gröblacher  
*Remote quantum entanglement between two micromechanical oscillators*  
Nature **556**, 473–477 (2018).
54. J. P. Moura\*, R. A. Norte\*, J. Guo, C. Schäfermeier, and S. Gröblacher  
*Centimeter-scale suspended photonic crystal mirrors*  
Opt. Express **26**, 1895–1909 (2018).
55. S. Hong\*, R. Riedinger\*, I. Marinković\*, A. Wallucks\*, S. G. Hofer, R. A. Norte, M. Aspelmeyer, and S. Gröblacher  
*Hanbury Brown and Twiss interferometry of single phonons from an optomechanical resonator*  
Science **358**, 203–206 (2017).

56. J. Guo, R. A. Norte, and S. Gröblacher  
*Integrated optical force sensors using focusing photonic crystal arrays*  
Opt. Express **25**, 9196–9203 (2017).
57. R. A. Norte, J. P. Moura, and S. Gröblacher  
*Mechanical resonators for quantum optomechanics experiments at room temperature*  
Phys. Rev. Lett. **116**, 147202 (2016).
58. R. Riedinger\*, S. Hong\*, R. A. Norte, J. A. Slater, J. Shang, A. G. Krause, V. Anant, M. Aspelmeyer, and S. Gröblacher  
*Non-classical correlations between single photons and phonons from a mechanical oscillator*  
Nature **530**, 313–316 (2016).
59. S. Gröblacher, A. Trubarov, N. Prigge, G. D. Cole, M. Aspelmeyer, and J. Eisert  
*Observation of non-Markovian micromechanical Brownian motion*  
Nature Commun. **6**, 7606 (2015).
60. J. D. Cohen\*, S. M. Meenehan\*, G. S. MacCabe, S. Gröblacher, A. H. Safavi-Naeini, F. Marsili, M. D. Shaw, and O. Painter  
*Phonon counting and intensity interferometry of a nanomechanical resonator*  
Nature **520**, 522–525 (2015).
61. S. M. Meenehan\*, J. D. Cohen\*, S. Gröblacher\*, J. T. Hill, A. H. Safavi-Naeini, M. Aspelmeyer, and O. Painter  
*Silicon optomechanical crystal resonator at Millikelvin temperatures*  
Phys. Rev. A **90**, 011803(R) (2014).
62. A. H. Safavi-Naeini, J. T. Hill, S. Meenehan, J. Chan, S. Gröblacher, and O. Painter  
*Two-dimensional phononic-photonic band gap optomechanical crystal cavity*  
Phys. Rev. Lett. **112**, 153603 (2014).
63. S. Gröblacher\*, J. T. Hill\*, A. H. Safavi-Naeini\*, J. Chan, and O. Painter  
*Highly efficient coupling from an optical fiber to a nanoscale silicon optomechanical cavity*  
Appl. Phys. Lett. **103**, 181104 (2013).
64. S. Gröblacher, S. Gigan, and M. Paternostro  
*Phase-space behavior and conditional dynamics of an optomechanical system*  
Phys. Rev. A **88**, 023813 (2013).
65. A. H. Safavi-Naeini\*, S. Gröblacher\*, J. T. Hill\*, J. Chan, M. Aspelmeyer, and O. Painter  
*Squeezed light from a silicon micromechanical resonator*  
Nature **500**, 185–189 (2013).
66. J. Li, S. Gröblacher, and M. Paternostro  
*Enhancing non-classicality in mechanical systems*  
New J. Phys. **15**, 033023 (2013).
67. S. Ramelow, A. Mech, M. Giustina, S. Gröblacher, W. Wieczorek, J. Beyer, A. Lita, B. Calkins, T. Gerrits, S. W. Nam, A. Zeilinger, and R. Ursin  
*Highly efficient heralding of entangled single photons*  
Opt. Express **21**, 6707–6717 (2013).
68. A. H. Safavi-Naeini, J. Chan, J. T. Hill, S. Gröblacher, H. Miao, Y. Chen, M. Aspelmeyer, and O. Painter  
*Laser noise in cavity-optomechanical cooling and thermometry*  
New J. Phys. **15**, 035007 (2013).
69. J. Chan, T. P. Mayer Alegre, A. H. Safavi-Naeini, J. T. Hill, A. Krause, S. Gröblacher, M. Aspelmeyer, and O. Painter  
*Laser cooling of a nanomechanical oscillator into its quantum ground state*  
Nature **478**, 89–92 (2011).
70. M. Aspelmeyer, S. Gröblacher, K. Hammerer, and N. Kiesel  
*Quantum optomechanics – throwing a glance*  
J. Opt. Soc. Am. B **27**, A189–A197 (2010).
71. S. Gröblacher, K. Hammerer, M. R. Vanner, and M. Aspelmeyer  
*Observation of strong coupling between a micromechanical resonator and an optical cavity field*  
Nature **460**, 724–727 (2009).
72. S. Gröblacher, J. B. Hertzberg, M. R. Vanner, G. D. Cole, S. Gigan, K. C. Schwab, and M. Aspelmeyer  
*Demonstration of an ultracold micro-optomechanical oscillator in a cryogenic cavity*  
Nature Phys. **5**, 485–488 (2009).
73. G. D. Cole, S. Gröblacher, K. Gugler, S. Gigan, and M. Aspelmeyer  
*Monocrystalline  $Al_xGa_{1-x}As$  heterostructures for high-reflectivity high-Q micromechanical resonators in the megahertz regime*  
Appl. Phys. Lett. **92**, 261108 (2008).
74. S. Gröblacher, S. Gigan, H. R. Böhm, A. Zeilinger, and M. Aspelmeyer  
*Radiation-pressure self-cooling of a micromirror in a cryogenic environment*  
Europhys. Lett. **81**, 54003 (2008).

75. T. Paterek, A. Fedrizzi, S. Gröblacher, T. Jennewein, M. Żukowski, M. Aspelmeyer, A. Zeilinger  
*Experimental test of nonlocal realistic theories without the rotational symmetry assumption*  
Phys. Rev. Lett. **99**, 210406 (2007).
76. M. Stütz, S. Gröblacher, T. Jennewein, and A. Zeilinger  
*How to create and detect N-dimensional entangled photons with an active phase hologram*  
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