PROF. DR FERDINAND SCHMIDT-KALER

Personal Information

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Phone:	+49-7135022830 / +49-1706390409
Date and Place of birth:	November 17th, 1962 Bonn, Germany

Main Research Fields

Laser cooling and trapping of atoms and ions, high resolution spectroscopy, quantum information technologies with atoms, ions, electrons and solids, more than 200 publications with >18k citation in total and h=62

Scientific Career and International Experience

Since 2017	Member of the Australian Cluster of Excellence CQC2T
Since 2012	PI in the Cluster of Excellence PRISMA at Johannes Gutenberg-University, Mainz, Germany
Since 2010	Full Professor of Experimental Quantum Optics and Atomic Physics at Johannes Gutenberg-University Mainz & PI at Helmholtz Institute Mainz
2005-2010	Full Professor of Experimental Physics, Institute for Quantum Information Processing at the University of Ulm
2001	Habilitation and University Lecturer, University of Innsbruck, Austria
1995-1996	Research Assistant with R. Blatt, University of Innsbruck
1992-1995	Postdoctoral Research Assistant with S. Haroche, Lab. Kastler Brossel École Normale Supérieure, Paris
1992	Research Assistant, MPQ Garching
1989-1992	PhD student with T. Hänsch, MPQ Garching
1989	Diploma in Physics at the Technical University of Munich and MPI for Quantum Optics (MPQ) in Garching with G. Rempe, H. Walther
1986	Study of Physics, Technical University of Munich
1985-1986	Study of Physics, Friedrich-Wilhelm University of Bonn
1983-1984	Study of Physics, Ruhr-University of Bochum

Memberships and Academic Functions

Since 2020	Spokesperson for the Mainz node of the SFB-306
Since 2018	Member of Vorstandsrat der Deutschen Physikalischen Gesellschaft
2017	Organization of ITAMP workshop Quantum Thermodynamics, Harvard
2016/17	Local organization Spring Meeting of the German Phys. Society Mainz
2016	Panel member of QUTEGA
2014	Organization of ECTI conference Mainz
2013	Organization of QION 2013 Benasque
2009 - 2011	Organization of the Spring Meetings for the German Physical Society
1999/2000	Organization of international conferences ICOLS99, ICAP2000
2013 - 2016	Coordination of the European Integrated Project SIQS
2009 - 2013	Coordinator of the European Integrated Project AQUTE
2005 - 2010	Ulm Spokesperson of the TRR21
Since 2010	Member in quantum repeater network by German Federal Ministry of Education and Research (BMBF)
2010 - 2017	Panel member for ERC staring/consolidation
2011 - 2013	Vice-head of the quantum optics section of the German Physical Society
2009 - 2011	Head of the German Physical Society for the section quantum optics and photonics
2008 - 2009	Dean of students for the Physics Department, Univ. Ulm
2006-08/2009-10	Faculty Vice-Dean, Univ. Ulm

Editorial Work

PRL divisional editor (until 2021), J. Mod. Phys. editorial board member, EPJD Editorial board (until 2016) and Appl. Phys. B Special Issues

Scholarships, Awards and Honours

2003	Rudolf Kaiser Award
1997	Innovation Award by the Tyroler Sparkasse
1993	Helmholtz Award for high precision measurements of fundamental constants by the Deutsche Physikalische Bundesanstalt Braunschweig

Grants and Funding

- German Science Foundation in several individual research projects within Forschergruppen and Schwerpunktprogramme
- Subprojects within Sonderforschungsbereiche TR-49, TR-21, TR-306,
- German-French project, German-Israel project (GIF and DIP)
- PI in Mainz cluster of excellence PRISMA
- PI in Melbourne/Sidney cluster of excellence CQC2T
- The Bundesministerium für Wissenschaft und Forschung (German Federal Ministry for Education and Research) within Quantum Technologies: IQUAN, TRAPS, EVAQS, QRX, QLINKS, ATIQ, …
- The Volkswagen Foundation
- The European commission in several FET open and proactive initiatives
- The US intelligence advanced research projects activity

List of publications

full list with downloads http://www.quantenbit.de/#/publications/

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https://orcid.org/0000-0002-5697-2568, SCOPUS Author ID: 56239068100

Five most cited publications:

Quantum Rabi oscillation: A direct test of field quantization in a cavity, M. Brune, F. Schmidt-Kaler, et al, Phys. Lev. Lett. 76, 1800 (1996) cited 1269x

Realization of the Cirac–Zoller controlled-NOT quantum gate, F. Schmidt-Kaler, et al., Nature 422 (6930), 408, 411 (2003) cited 1155x

Deterministic quantum teleportation with atoms, M. Riebe, H. Häffner, C. Roos, W. Hänsel, J. Benhelm, GPT Lancaster, T. Körber, C. Becher, F. Schmidt-Kaler, D. James, R. Blatt, Nature 429, 734 (2004) cited 1136x

Observation of sub-Poissonian photon statistics in a micromaser, G. Rempe, F. Schmidt-Kaler, H. Walther, Phys. Rev. Lett. 64, 2783 (1990) cited 696x

Implementation of the Deutsch–Jozsa algorithm on an ion-trap quantum computer, S. Gulde, M. Riebe, G. Lancaster, C. Becher, J. Eschner, H. Häffner, F. Schmidt-Kaler, I. Chuang, R. Blatt, Nature 421, 48 (2003) cited 648x

Publications

218) Dmitry Budker, Peter W. Graham, Harikrishnan Ramani, Ferdinand Schmidt-Kaler, Christian Smorra, Stefan Ulmer,
Millicharged dark matter detection with ion traps (2021), arXiv:2108.05283

217) J.Hilder, D. Pijn, O. Onishchenko, A. Stahl, M. Orth, B. Lekitsch, A. Rodriguez-Blanco, M. Müller, F. Schmidt-Kaler, U. Poschinger,
Fault-tolerant parity readout on a shuttling-based trapped-ion quantum computer (2021) arXiv:2102.12047

216) F. Stopp, L. Ortiz-Gutiérrez, H. Lehec, F. Schmidt-Kaler,
Single Ion Thermal Wave Packet Analyzed Via Time-Of-Flight Detection,
New Jour. Phys. 23, 063002 (2021), arXiv:2102.12047

215) K. Groot-Berning, G. Jacob, C. Osterkamp, F. Jelezko, F. Schmidt-Kaler,
Fabrication of 15NV− centers in diamond using a deterministic single ion implanter,
New Jour. Phys. 23 063067 (2021), pdf

214) S. Richter, S. Wolf, J. von Zanthier, F. Schmidt-Kaler,
Imaging trapped ion structures via fluorescence cross-correlation detection
Phys. Rev. Lett. 126, 173602 (2021)

213) Martin Drechsler, Sebastian Wolf, Christian T. Schmiegelow, F. Schmidt-Kaler,
Optical super-resolution sensing of a trapped ion's wave packet size (2021),
arXiv:2104.07095

212) A. Husson et. al. (GBAR collaboration),
A pulsed high-voltage decelerator system to deliver low-energy antiprotons,
Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Vol. 1002 165245 (2021)

211) M. Charlton et. al. (GBAR collaboration),
Positron production using a 9 MeV electron linac for the GBAR experiment,
Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Vol. 985 164657 (2021), arXiv: 2006.05966

210) J. Andrijauskas, J. Vogel, A. Mokhberi, F. Schmidt-Kaler,
Precision measurement of the ionization energy of a single trapped 40Ca+ ion by Rydberg series excitation (2020),
arXiv:2009.01070

209) G. Quinteiro, Ch. Schmiegelow, F. Schmidt-Kaler,
The paraxial approximation fails to describe the interaction of atoms with general vortex light fields (2020),
arXiv:2004.00040

208) A. Mokhberi, M. Hennrich, F. Schmidt-Kaler,
Trapped Rydberg ions: a new platform for quantum information processing,
Advances In Atomic, Molecular, and Optical Physics, Academic Press, Ch. 4, 69 (2020), arXiv:2003.08891

207) M. Salz, Y. Herrmann, A. Nadarajah, A. Stahl, M. Hettrich, A. Stacey, S. Prawer, D. Hunger, F. Schmidt-Kaler,
Cryogenic platform for coupling color centers in diamond membranes to a fiberbased microcavity,
Appl. Phys. B 126, 131 (2020), arXiv:2002.08304

206) S. Wolf, S. Richter, J. von Zanthier, F. Schmidt-Kaler, Light of Two Atoms in Free Space: Bunching or Antibunching?,
Phys. Rev. Lett. 124, 063603 (2020)

205) V. Kaushal, B. Lekitsch, A. Stahl, J. Hilder, D. Pijn, C. Schmiegelow, A. Bermudez, M. Müller, F. Schmidt-Kaler, U. Poschinger,
Shuttling-Based Trapped-Ion Quantum Information Processing, accepted for publication in AVS Quantum Sci. 2, 014101 (2020), arXiv:1911.10983

204) S. Wolf, S. Richter, J. von Zanthier, F. Schmidt-Kaler,
Light from an ion crystal: bunching or antibunching?
Phys. Rev. Lett. 124, 063603 (2020)

203) R. Haas, T. Kieck, D. Budker, C. E. Düllmann, K. Groot-Berning, W. Li, D. Renisch, F. Schmidt-Kaler, F. Stopp, A. Viatkina,
Development of a recoil ion source providing slow Th ions including 229(m)Th in a broad charge state distribution,
Hyperfine interactions 241, 25 (2020), arXiv:1911.11674

202) Filippo Maria Gambetta, Weibin Li, Ferdinand Schmidt-Kaler, Igor Lesanovsky,
Engineering non-binary Rydberg interactions via electron-phonon coupling,
Phys. Rev. Lett. 124, 03402 (2020).

201) J. Vogel, W.Li, A. Mokhberi, I. Lesanowsky, F. Schmidt-Kaler,
Shuttling of Rydberg ions for fast entangling operations,
Phys. Rev. Lett. 123, 153603 (2019)

200) K. Groot-Berning, T. Kornher, G. Jacob, F. Stopp, S. Dawkins, R. Kolesov, J. Wrachtrup, K. Singer, F. Schmidt-Kaler,
Deterministic single ion implantation of rare-earth ions for nanometer resolution colour center generation,
Phys. Rev. Lett.123, 106802 (2019). Selected and featured by the editors. See article by Belle Dume in Physics World 19 Sep. 2019.

199) F. Schmidt-Kaler, and U. G. Poschinger, Chapter on Trapped Ions in Quantum Information, second edition, Whiley (2019), Edr. Leuchs & Bruss.

198) C. Henkel, G. Jacob, F. Stopp, F. Schmidt-Kaler, Mark Keil, Yonathan Japha, Ron Folman,
Stern Gerlach splitting for low-energy ion beams,
New Journal of Physics 21, 083022 (2019)

197) “Shuttling of Rydberg ions for fast entangling operations”, J. Vogel, W.Li, A. Mokhberi, I. Lesanowsky, F. Schmidt-Kaler, Phys. Rev. Lett. 123, 153603 (2019)

196) "Determination of quantum defect for the Rydberg P series of Ca II”
A. Mokhberi, J. Vogel, J. Andrijauskas, J. Walz, F. Schmidt-Kaler, J. Phys. B 52, 214001 (2019), special issue on Rydberg interactions

195) “Deterministic single ion implantation of rare-earth ions for nanometer resolution colour center generation”, K. Groot-Berning, T. Kornher, G. Jacob, F. Stopp, S. Dawkins, R. Kolesov, J. Wrachtrup, K. Singer, F. Schmidt-Kaler, Phys. Rev. Lett.123, 106802 (2019). Selected and featured by the editors. See article by Belle Dume in Physics World 19 Sep. 2019.

194) “Stern Gerlach splitting for low-energy ion beams”, C. Henkel, G. Jacob, F. Stopp, F. Schmidt-Kaler, Mark Keil, Yonathan Japha, Ron Folman, New Journal of Physics 21, 083022 (2019)

193) "A spin heat engine coupled to a harmonic-oscillator flywheel", D. von Lindenfels, O. Gräb, C. T. Schmiegelow, V. Kaushal, J. Schulz, Mark T. Mitchison, John Goold, F. Schmidt-Kaler, and U. G. Poschinger, Phys. Rev. Lett. 123, 080602 (2019), selected and featured by the editors.

192) “Quantum simulating an experiment: Light interference from single ions and their mirror images”, L. Bouten, G. Vissers, F. Schmidt-Kaler, Phys. Rev. A 100, 022323 (2019)

191) "Operation of a Microfabricated Planar Ion-Trap for Studies of a Yb+-Rb Hybrid Quantum System", A. Bahrami, M. Müller, M. Drechsler, J. Joger, R. Gerritsma, F. Schmidt-Kaler, Physica Status Solidi B: Basic Solid State Physics 1800647 (2019)

190) "Trapping and sympathetic cooling of single thorium ions for spectroscopy", K. Groot-Berning, F. Stopp, G. Jacob, D. Budker, R. Haas, D. Renisch, J. Runke, P. Thörle-Pospiech, C. Düllmann, F. Schmidt-Kaler, Phys. Rev. A 99, 023420 (2019)

189) "Excitation of E1-forbidden Atomic Transitions with Electric, Magnetic or Mixed Multipolarity in Light Fields Carrying Orbital and Spin Angular Momentum", Maria Solyanik-Gorgone, Andrei Afanasev, Carl E. Carlson, Christian T. Schmiegelow, Ferdinand Schmidt-Kaler, J. Opt. Soc. Am. B 36(3), 565 (2019)

188) "Spin and motion dynamics with zigzag ion crystals in transverse magnetic field gradients", J. Welzel, F.Stopp, F. Schmidt-Kaler, J. Phys. B: At. Mol. Opt. Phys. 52 025301 (2019)

187) Physik Journal 8/2018, Ferdinand Schmidt-Kaler, "Fiasko statt Verbesserung", https://www.pro-physik.de/restricted-files/125276

186) "Efficient and robust photo-ionization loading of beryllium ions", S. Wolf, D. Studer, K. Wendt, F. Schmidt-Kaler, Appl. Phys. B 124:30 (2018)

185) "Experimental Verification of Position-Dependent Angular-Momentum Selection Rules for Absorption of Twisted Light by a Bound Electron”, A. Afanasev, C. Carlson, C. Schmiegelow, J. Schulz, F. Schmidt-Kaler, M. Solyanik, New Jour. Phys. 20, 023032 (2018)

184) "Twisted-ligth-ion interaction: the role of longitudinal fields", G. Quinteiro, F. Schmidt-Kaler, C. Schmiegelow, Phys. Rev. Lett. 119, 253203 (2017), editors selection

183) "Quantenphasen, aber dynamisch“, P. Windpassinger, F. Schmidt-Kaler, Phys. Jour. page 22, Dec. (2017)

182) "Assessing the progress of trapped-ion processors towards fault-tolerant quantum computation", A. Bermudez, X. Xu, R. Nigmatullin, J. O'Gorman, V. Negnevitsky, P. Schindler, T. Monz, U. G. Poschinger, C. Hempel, J. Home, F. Schmidt-Kaler, M. Biercuk, R. Blatt, S. Benjamin, M. Müller, Phys. Rev. X 7, 041061 (2017)

181) "Scalable creation of long-lived multipartite entanglement", H. Kaufmann, T. Ruster, C. Schmiegelow, M. Luda, V. Kaushal, J. Schulz, D. von Lindenfels, F. Schmidt-Kaler, U. G. Poschinger, Phys. Rev. Lett. 119, 15050 (2017), editors selection

180) "Entanglement-Based dc Magnetometry with Separated Ions", T. Ruster, H. Kaufmann, M. A. Luda, V. Kaushal, C. T. Schmiegelow, F. Schmidt-Kaler, U. G. Poschinger, Phys. Rev. X 7, 031050 (2017)

179) "Fast ion swapping for quantum information processing", H. Kaufmann, T. Ruster, C. Schmiegelow, M. Luda, V. Kaushal, J. Schulz, D. von Lindenfels, F. Schmidt-Kaler, U. Poschinger, Phys. Rev. A 95, 052319 (2017)

178) "Investigation of two-frequency Paul traps for antihydrogen production", Nathan Leefer, Kai Krimmel, William Bertsche, Dmitry Budker, Joel Fajans, Ron Folman, Hartmut Häffner, Ferdinand Schmidt-Kaler, arXiv:1603.09444, Hyperfine Interact (2017) 238: 12

177) Georg Jacob, Karin Groot-Berning, Sebastian Wolf, Stefan Ulm, Luc Couturier, Samuel T. Dawkins, Ulrich G. Poschinger, Ferdinand Schmidt-Kaler, and Kilian Singer "Mikroskopieren mit einzelnen Ionen ", GIT https://www.chemie.de/news/159454/mikroskopieren-mit-einzelnen-ionen.html (2016)

176) “Excitation of an Atomic Transition with a Vortex Laser Beam”, C. T. Schmiegelow, J. Schulz, H. Kaufmann, T. Ruster, U. G. Poschinger, F. Schmidt-Kaler, Nature Comm. 7, 12998 (2016)

175) "A long-lived Zeeman trapped-ion qubit", Thomas Ruster, Christian T. Schmiegelow, Henning Kaufmann, Claudia Warschburger, Ferdinand Schmidt-Kaler, Ulrich G. Poschinger, Applied Physics B, 122(10), 1 (2016)

174) "Cryogenic setup for trapped ion quantum computing", M.F. Brandl, M.W. van Mourik, L. Postler, A. Nolf, K. Lakhmanskiy, R.R. Paiva, S. Möller, N. Daniilidis, H. Häffner, V. Kaushal, T. Ruster, C. Warschburger, H. Kaufmann, U.G. Poschinger, F. Schmidt-Kaler, P. Schindler, T. Monz, R. Blatt, Rev. Sci. Instrum. 87, 113103 (2016)

173) “Microscopy with a Deterministic Single Ion Source”, G. Jacob, K. Groot-Berning, S. Wolf, S. Ulm, L. Couturier, S. T. Dawkins, U. G. Poschinger, F. Schmidt-Kaler, K. Singer, Phys. Rev. Lett. 117, 043001 (2016), featured synopsis in PRL “Taking Pictures with Single Ions”

172) "Maximizing the information gain of a single ion microscope using bayes experimental design", Georg Jacob, Karin Groot-Berning, Ulrich G. Poschinger, Ferdinand Schmidt-Kaler, Kilian Singer, SPIE Proceedings 9900, Quantum Optics (2016), article doi, arXiv:1605.05071

171) “Visibility of Young's interference fringes: Scattered light from small ion crystals”, S. Wolf, J. Wechs, J. von Zanthier, F. Schmidt-Kaler, Phys. Rev. Lett. 116, 183002 (2016)

170) “A Quantum Repeater Node with Trapped Ions: A Realistic Case Example” A. Pfister, M. Salz, M. Hettrich, U. Poschinger, F. Schmidt-Kaler", Appl. Phys. B 122:89 (2016)

169) "A single-atom heat engine", J. Roßnagel, S. Dawkins, N. Tolazzi, O. Abah, E. Lutz, F. Schmidt-Kaler, K. Singer, Science 352, 325 (2016), highlights in Nature Nanotechnology 11, 492 (2016)

168) "Carnot im Nanomasstab", F. Schmidt-Kaler, E. Lutz, Physik Journal, page 18, März (2016)

167) "Towards Rydberg quantum logic with trapped ions", P. Bachor, T. Feldker, J. Walz, F. Schmidt-Kaler, J. Phys. B: At. Mol. Opt. Phys. 49 (2016) 154004

166) “Phase-stable free-space optical lattices for trapped ions”, C. T. Schmiegelow, H. Kaufmann, T. Ruster, J. Schulz, V. Kaushal, M. Hettrich, F. Schmidt-Kaler, U. Poschinger, Phys. Rev. Lett. 116, 033002 (2016)

165) "Optimal Phonon-to-Spin Mapping in a system of a trapped ion", M. Müller, U. Poschinger, T. Calarco, S. Montangero, F. Schmidt-Kaler, Phys. Rev. A. 92, 053423 (2015).

164) "Rydberg excitation of a single trapped ion", T. Feldker, P. Bachor, M. Stappel, D. Kolbe, R. Gerritsma, J. Walz, F. Schmidt-Kaler, Phys. Rev. Lett. 115, 173001 (2015)

163) "The GBAR antimatter gravity experiment", P. Pérez et al., Hyperfine Interactions, 233-1, 21 (2015)

162) "Measurement of dipole matrix elements with a single trapped ion", M. Hettrich, T. Ruster, H. Kaufmann, C. F. Roos, C. T. Schmiegelow, F. Schmidt-Kaler, U. G. Poschinger, Phys. Rev. Lett. 115, 143003 (2015).

161) "Hexagonal Plaquette Spin-spin Interactions and Quantum Magnetism in a Two-dimensional Ion Crystal", R. Nath, M. Dalmonte, A. Glaetzle, P. Zoller, F. Schmidt-Kaler, R. Gerritsma, New J. Phys. 17 065018, (2015).

160) "Fast thermometry for trapped ions using dark resonances", J. Roßnagel, K. N. Tolazzi, F. Schmidt-Kaler, K. Singer, New Journal of Physics 17, 045004 (2015).

159) "Two-Dimensional Spectroscopy for the Study of Ion Coulomb Crystals", A. Lemmer, C. Cormick, C. T. Schmiegelow, F. Schmidt-Kaler, M. B. Plenio, Phys. Rev. Lett. 114, 073001 (2015).

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"Eine Dampfmaschine unterm Fingernagel"
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157) J. Rossnagel, N. Tolazzi, O. Abah, E. Lutz, F. Schmidt-Kaler, K. Singer,
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T. Ruster, C. Warschburger, H. Kaufmann, C. T. Schmiegelow, A. Walther, M. Hettrich, A. Pfister, V. Kaushal, F. Schmidt-Kaler, U. G. Poschinger, Phys. Rev. A 90, 033410 (2014).

155) "Generalised Kronig-Penney model for ultracold atomic quantum systems",
A. Negretti, R. Gerritsma, Z. Idziaszek, F. Schmidt-Kaler, T. Calarco, Phys. Rev. B 90, 155426 (2014).

154) "Dynamics and control of fast ion crystal splitting in segmented Paul traps", H. Kaufmann, T. Ruster, C. T. Schmiegelow, F. Schmidt-Kaler, U. G. Poschinger, New Journal of Physics 16, 073012 (2014).

153) "Controlling the transport of an ion: Classical and quantum mechanical solutions",
H. Goerz, U. G. Poschinger, M. Murphy, S. Montangero, T. Calarco, F. Schmidt-Kaler, K. Singer, C. P. Koch, New Journal of Physics 16, 075007 (2014).

152) "Quantum physics: Feel the force", F. Schmidt-Kaler, Nature 510, 349 (2014). Nature news and views of: S. Kotler, et al. Measurement of the magnetic interaction between two bound electrons of two separate ions

151) "Single particle microscopy with nanometer resolution", G. Jacob, K. Groot-Berning, S. Wolf, S. Ulm, L. Couturier, U. G. Poschinger, F. Schmidt-Kaler, K. Singer,
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150) "Fast shuttling of a trapped ion in the presence of noise", Lu, Xiao-Jing, Muga, J. G., Chen, Xi, Poschinger, U. G., Schmidt-Kaler, F., Ruschhaupt, A., Phys. Rev. A 89, 063414 (2014).

149) "The Gbar project, or how does antimatter fall?" P. Indelicato, G. Chardin, P. Grandemange, D. Lunney, V. Manea, A. Badertscher, P. Crivelli, A. Curioni, A. Marchionni, B. Rossi, A. Rubbia, V. Nesvizhevsky, D. Brook-Roberge, P. Comini, P. Debu, P. Dupré, L. Liszkay, B. Mansoulié, P. Pérez, J. -M. Rey, B. Reymond, N. Ruiz, Y. Sacquin, B. Vallage, F. Biraben, P. Cladé, A. Douillet, G. Dufour, S. Guellati, L. Hilico, A. Lambrecht, R. Guérout, J. -P. Karr, F. Nez, S. Reynaud, C. I. Szabo, V. -Q. Tran, J. Trapateau andA. Mohri, Y. Yamazaki, M. Charlton, S. Eriksson, N. Madsen, D. P. vanderWerf, N. Kuroda, H. Torii, Y. Nagashima, F. Schmidt-Kaler, J. Walz, S. Wolf, P. -A. Hervieux, G. Manfredi, A. Voronin, P. Froelich, S. Wronka, M. Staszczakhide, Hyperfine Interactions , (2014).Special Issue in International Journal of Modern Physics: Conference Series article

148) "Topical issue Frontiers of ion trap and atomic physics: Wolfgang Paul 100 - Editorial", G. Werth, F. Schmidt-Kaler, R. Blatt, Applied Physics B 114, 1 (2014).Part of Applied Physics B Topical Issue

147) "Mode shaping in mixed ion crystals of 40Ca2+ and 40Ca+", T. Feldker, L. Pelzer, M. Stappel, P. Bachor, D. Kolbe, J. Walz, F. Schmidt-Kaler, Appl. Phys. B 114, 11 (2014). Part of Topical Issue

146) "A nano heat engine beyond the Carnot limit", J. Roßnagel, O. Abah, F. Schmidt-Kaler, K. Singer, E. Lutz, Phys. Rev. Lett. 112, 030602 (2014), marked as an Editors' Suggestion letter

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Phys. Rev. Lett. 111, 080501 (2013), chosen for spotlight article on physics.org

143) "Observation of the Kibble-Zurek scaling law for defect formation in ion crystals", S. Ulm, J. Roßnagel, G. Jacob, C. Degünther, S. T. Dawkins, U. G. Poschinger, R. Nigmatullin, A. Retzker, M. B. Plenio, F. Schmidt-Kaler, K. Singer, Nature Communications 4, 2290 (2013)

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139) "Simulation of the Jahn–Teller–Dicke magnetic structural phase transition with trapped ions", P. A. Ivanov, D. Porras, S. S. Ivanov, F. Schmidt-Kaler, Journal of Physics B 46, 104003 (2013) appearing in special issue "The 20th anniversary of quantum state engineering"

138) "Shot-Noise-Limitet Monitoring and Phase Locking of the Motion of a Single Trapped Ion", P. Bushev, G. Hétet, L. Slodicka, D. Rotter, M. A. Wilson, F. Schmidt-Kaler, J. Eschner, R. Blatt, Phys. Rev. Lett. 110, 133602 (2013)

137) F. Schmidt-Kaler, D. Leibfried,
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H. Kaufmann, S. Ulm, G. Jacob, U. G. Poschinger, H. Landa, A. Retzker, M.B. Plenio, F. Schmidt-Kaler, Phys. Rev. Lett. 109, 263003 (2012)

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