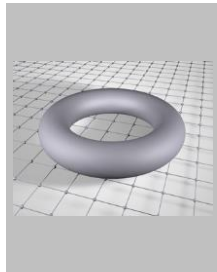


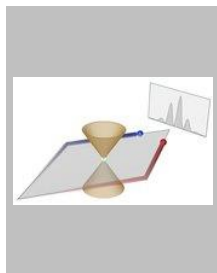
# Summary

- **>140 publications**, thereof  
**32 Nature/Science, 67 Physical Review Letters/Nature Physics**
- **Citation Metrics:**  
Google Scholar citations: **(total) > 39800, h-index: 79**  
ISI Web of Science citations: **(total) >24250, h-index: 64,**  
**average citations per article > 192**

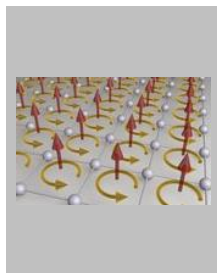
# Top Publications



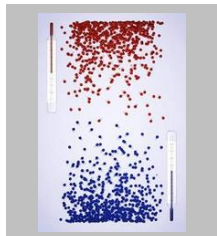
M. Aidelsburger, M. Lohse, C. Schweizer, M. Atala, J.T. Barreiro, S. Nascimbène, N.R. Cooper, I. Bloch, N. Goldman  
*Measuring the Chern number of Hofstadter bands with ultracold bosonic atoms*  
Nature Physics **11**, 162–166 (2015)  
published online (AOP), Dec. (2014)  
Citations (ISI Web of Science): 268, (Google scholar): 427



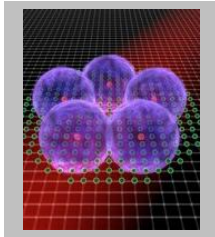
L. Duca, T. Li, M. Reitter, I. Bloch, M. Schleier-Smith, U. Schneider  
*An Aharonov-Bohm interferometer for determining Bloch band topology*  
Science **347** 288-292 (2015)  
Published online (Science Express), Dec. (2014)  
Citations (ISI Web of Science): 87, (Google scholar): 131



M. Aidelsburger, M. Atala, M. Lohse, J.T. Barreiro, B. Paredes, I. Bloch  
*Realization of the Hofstadter Hamiltonian with ultracold atoms in optical lattices*  
Phys. Rev. Lett. **111**, 185301 (2013)  
Citations (ISI Web of Science): 503, (Google scholar): 706

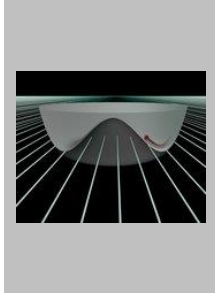


S. Braun, J. P. Ronzheimer, M. Schreiber, S. S. Hodgman, T. Rom, I. Bloch, U. Schneider  
*Negative Absolute Temperature for Motional Degrees of Freedom*  
Science **339**, 52 (2013)  
Citations (ISI Web of Science): 71, (Google scholar): 155



P. Schauß, M. Cheneau, M. Endres, T. Fukuhara, S. Hild, A. Omran, Th. Pohl, Ch. Gross, S. Kuhr, I. Bloch  
*Observation of spatially ordered structures in a two-dimensional Rydberg gas*  
 Nature **491**, 87 (2012)

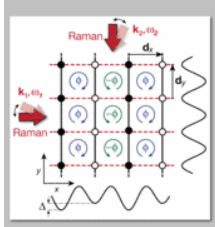
*Citations (ISI Web of Science): 237, (Google scholar): 353*



M. Endres, T. Fukuhara, D. Pekker, M. Cheneau, P. Schauss, Ch. Gross, E. Demler, S. Kuhr, I. Bloch  
*The 'Higgs' amplitude mode at the two-dimensional superfluid-Mott insulator transition*

Nature **487**, 454 (2012)

*Citations (ISI Web of Science): 145, (Google scholar): 231*



M. Aidelsburger, M. Atala, S. Nascimbène, S. Trotzky, Y.-A. Chen, I. Bloch  
*Experimental Realization of Strong Effective Magnetic Fields in an Optical Lattice*

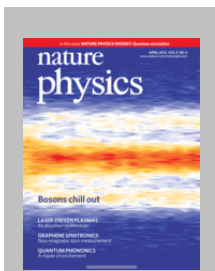
Phys. Rev. Lett. **107**, 255301 (2012)

*Citations (ISI Web of Science): 370, (Google Scholar): 528*



I. Bloch, J. Dalibard, S. Nascimbène  
*Quantum simulations with ultracold quantum gases*  
 Nature Physics **8**, 267-276 (2012)

*Citations (ISI Web of Science): 667, (Google Scholar): 1122*

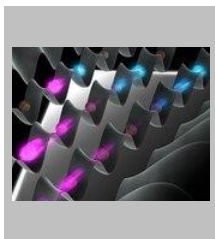


S. Trotzky, Y.-A. Chen, A. Flesch, I. McCulloch, U. Schollwöck, J. Eisert, I. Bloch

*Probing the relaxation towards equilibrium in an isolated strongly correlated 1D Bose gas*

Nature Physics **8**, 325 (2012)

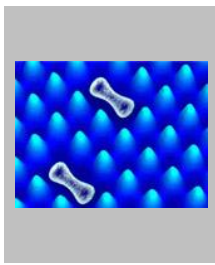
*Citations (ISI Web of Science): 405, (Google Scholar): 614*



M. Cheneau, P. Barmettler, D. Poletti, M. Endres, P. Schauss, T. Fukuhara, C. Gross, I. Bloch, C. Kollath, S. Kuhr

*Light-Cone-Like Spreading of Correlations in a Quantum Many-Body System*  
 Nature **481**, 484 (2012)

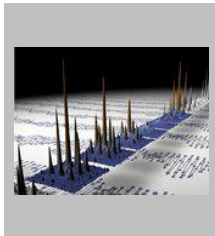
*Citations (ISI Web of Science): 346, (Google Scholar): 524*



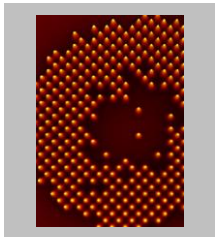
M. Endres, M. Cheneau, T. Fukuhara, Ch. Weitenberg, P. Schauss, L. Mazza, M.-C. Banuls, L. Pollet, I. Bloch, S. Kuhr  
*Observation of Correlated Particle-Hole Pairs and String Order in Low-Dimensional Mott Insulators*  
 Science **334**, 200 (2011)  
 Citations (ISI Web of Science): 142, (Google Scholar): 218



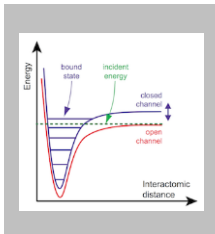
C. Weitenberg, M. Endres, J.F. Sherson, N. Cheneau, P. Schauf, T. Fukuhara, I. Bloch, S. Kuhr  
*Single-Spin Addressing in an Atomic Mott Insulator*  
 Nature **471**, 319 (2011)  
 Citations (ISI Web of Science): 374, (Google Scholar): 590



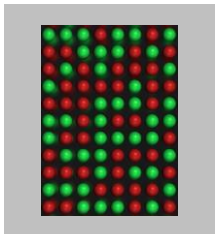
S. Will, T. Best, U. Schneider, L. Hackermüller, D. Lühmann, I. Bloch  
*Time-resolved observation of coherent multi-body interactions in quantum phase revivals*  
 Nature **465**, 197 (2010)  
 Citations (ISI Web of Science): 164, (Google Scholar): 254



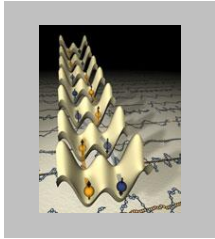
J.F. Sherson, Ch. Weitenberg, M. Endres, M. Cheneau, I. Bloch, S. Kuhr  
*Single-atom-resolved fluorescence imaging of an atomic Mott insulator*  
 Nature **467**, 68 (2010)  
 Citations (ISI Web of Science): 650, (Google Scholar): 1042



I. Bloch, J. Dalibard, W. Zwerger  
*Many-body physics with ultracold gases*  
 Rev. Mod. Phys. **80**, 885 (2008)  
 Citations (ISI Web of Science): 3945, (Google Scholar): 5961



U. Schneider, L. Hackermüller, S. Will, Th. Best, I. Bloch, T. A. Costi, R.W. Helmes, D. Rasch, A. Rosch  
*Metallic and Insulating Phases of Repulsively Interacting Fermions in an Optical Lattice*  
 Science **322**, 1520 (2008)  
 Citations (ISI Web of Science): 505, (Google Scholar): 653

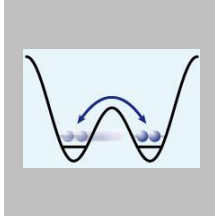


S. Trotzky, P. Cheinet, S. Fölling, M. Feld, U. Schnorrberger, A.M. Rey, A. Polkovnikov, E. Demler, M. Lukin, I. Bloch

*Time-resolved observation and control of superexchange interactions with ultracold atoms in optical lattices*

Science **319**, 295 (2008)

Citations (ISI Web of Science): 411, (Google Scholar): 593

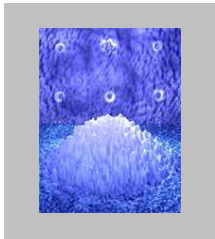


S. Fölling, S. Trotzky, P. Cheinet, M. Feld, R. Saers, T. Müller, A. Widera, I. Bloch

*Direct observation of second order atom tunnelling*

Nature **448**, 1029 (2007)

Citations (ISI Web of Science): 349, (Google Scholar): 521

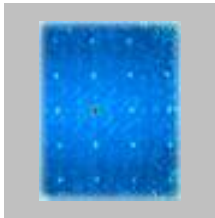


T. Rom, Th. Best, D. van Oosten, U. Schneider, S. Fölling, B. Paredes, I. Bloch

*Free fermion antibunching in a degenerate Fermi gas released from an optical lattice*

Nature **444**, 733 (2006)

Citations (ISI Web of Science): 177, (Google Scholar): 304

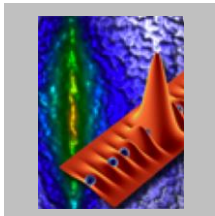


S. Fölling, F. Gerbier, A. Widera, O. Mandel, T. Gericke, I. Bloch

*Spatial quantum noise interferometry in expanding ultracold atom clouds*

Nature **434**, 481 (2005)

Citations (ISI Web of Science): 360, (Google Scholar): 617

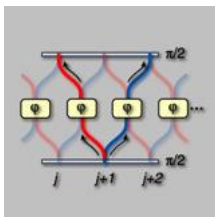


B. Paredes, A. Widera, V. Murg, O. Mandel, S. Fölling, I. Cirac, G. Shlyapnikov, T. W. Hänsch, I. Bloch

*Tonks-Girardeau gas in an optical lattice*

Nature **429**, 277 (2004)

Citations (ISI Web of Science): 1072, (Google Scholar): 1618

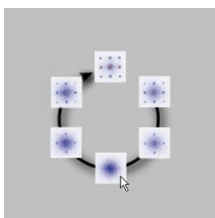


O. Mandel, M. Greiner, A. Widera, T. Rom, T.W. Hänsch, I. Bloch,

*Controlled collisions for multi-particle entanglement of optically trapped atoms*

Nature **425**, 937 (2003)

Citations (ISI Web of Science): 546, (Google Scholar): 871

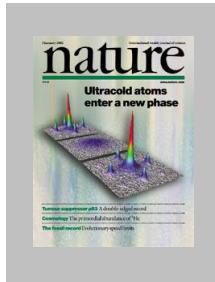


Greiner, M., O. Mandel, T.W. Hänsch, I. Bloch

*Collapse and revival of the matter wave field of a Bose-Einstein condensate*

Nature **419**, 51 (2002)

Citations (ISI Web of Science): 828, (Google Scholar): 1184



Greiner, M., O. Mandel, T. Esslinger, T.W. Hänsch, I. Bloch  
*Quantum phase transition from a superfluid to a Mott insulator in a gas of ultracold atoms*

Nature **415**, 39 (2002)

Citations (ISI Web of Science): 3749; (Google Scholar): 5941

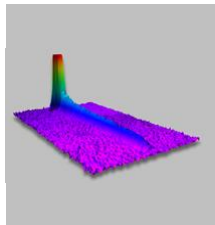


Bloch, I., T.W. Hänsch, T. Esslinger

*Measurement of the spatial coherence of a trapped Bose gas at the phase transition*

Nature **403**, 166, (2000)

Citations (ISI Web of Science): 224, (Google Scholar): 434



Bloch, I., T.W. Hänsch, T. Esslinger

*Atom laser with a cw output coupler*

Phys. Rev. Lett. **82**, 3008 (1999)

Citations (ISI Web of Science): 418, (Google Scholar): 756

## List of Publications

- 141** M. Lohse, Ch. Schweizer, H. M. Price, O. Zilberberg, I. Bloch  
*Exploring 4D Quantum Hall Physics with a 2D Topological Charge Pump*  
Nature **553**, 55 (2018)
- 140** H P. Lüschen, S. Scherg, T. Kohlert, M. Schreiber, P. Bordia, X. Li, S. D. Sarma, I. Bloch  
*Exploring the Single-Particle Mobility Edge in a One-Dimensional Quasiperiodic Optical Lattice*  
arXiv:1709.03478
- 139** F. Seeßelberg, N. Buchheim, Z.K. Lu, T. Schneider, X.-Y. Luo, I. Bloch and C. Gohle  
*Modeling the adiabatic creation of ultracold, polar  $^{23}\text{Na}^{40}\text{K}$  molecules*  
Physics Review A **97**, 013405 (2018)
- 138** J. Zeiher, Jae-yoon Choi, A. Rubio-Abadal, T. Pohl, R. van Bijnen, I. Bloch, Christian Gross  
*Coherent many-body spin dynamics in a long-range interacting Ising chain*  
Physical Review X **7**, 041063 (2017)
- 137** C. Gross, I. Bloch  
*Quantum simulations with ultracold atoms in optical lattices*  
Science **357**, 995 (2017)
- 136** L. Riegger, N. Darkwah Oppong, M. Höfer, D. R. Fernandes, I. Bloch, S. Fölling  
*Localized magnetic moments with tunable spin exchange in a gas of ultracold fermions*  
arXiv:1708.03810
- 135** T. Hilker, G. Salomon, F. Grusdt, A. Omran, M. Boll, E. Demler, I. Bloch, C. Gross  
*Revealing hidden antiferromagnetic correlations in doped Hubbard chains via string correlators*  
Science **357**, 484 (2017)
- 134** M. Reitter, J. Näger, K. Wintersperger, Ch. Sträter, I. Bloch, A. Eckardt, U. Schneider  
*Interaction dependent heating and atom loss in a periodically driven optical lattice*  
Phys. Rev. Lett. **119**, 200402 (2017)
- 133** P. Bordia, H. Lüschen, S. Scherg, S. Gopalakrishnan, M. Knap, U. Schneider, I. Bloch  
*Probing Slow Relaxation and Many-Body Localization in Two-Dimensional Quasi-Periodic Systems*  
Phys. Rev. X **7**, 041047
- 132** H. P. Lüschen, P. Bordia, S. Scherg, F. Alet, E. Altman, U. Schneider, I. Bloch  
*Observation of Slow Dynamics near the Many-Body Localization Transition in One-Dimensional Quasiperiodic Systems*  
Phys. Rev. Lett. **119**, 260401 (2017)

Prof. Dr. Immanuel Felix Bloch

Ludwig-Maximilians-Universität & Max-Planck-Institut für Quantenoptik

16 March 2018

- 131** H. P. Lüschen, P. Bordia, S. S. Hodgman, M. Schreiber, S. Sarkar, A. J. Daley, M. H. Fischer, E. Altman, I. Bloch, U. Schneider  
*Signatures of Many-Body Localization in a Controlled Open Quantum System*  
Phys. Rev. **X** **7**, 011034 (2017)
- 130** C. Schweizer, M. Lohse, R. Citro, and I. Bloch  
*Spin Pumping and Measurement of Spin Currents in Optical Superlattices*  
Phys. Rev. Lett. **117**, 170405 (2016)
- 129** M. Boll, T. Hilker, G. Salomon, A. Omran, J. Nespolo, L. Pollet, I. Bloch, C. Gross  
*Spin- and Density-Resolved Microscopy of Antiferromagnetic Correlations in Fermi-Hubbard Chains*  
Science **353**, 6305 (2016)
- 128** J. Zeiher, R. van Bijnen, P. Schauß, S. Hild, J.-y. Choi, T. Pohl, I. Bloch, C. Gross  
*Many-body interferometry of a Rydberg-dressed spin lattice*  
Nature Physics **12**, 1095–109 (2016)
- 127** J.-y. Choi, S. Hild, J. Zeiher, P. Schauß, A. Rubio-Abadal, T. Yefsah, V. Khemani, D. A. Huse, I. Bloch, C. Gross  
*Exploring the many-body localization transition in two dimensions*  
Science **352**, 1547 (2016)
- 126** P. Bordia, H. Lüschen, U. Schneider, M. Knap, I. Bloch  
*Periodically Driving a Many-Body Localized Quantum System*  
Nature Physics **13**, 460–464 (2017)
- 125** C. Hofrichter, L. Riegger, F. Scazza, M. Höfer, D. R. Fernandes, I. Bloch, S. Fölling  
*Direct probing of the Mott crossover in the  $SU(N)$  Fermi-Hubbard model*  
Phys. Rev. **X** **6**, 021030 (2016)
- 124** L. Vidmar, J. P. Ronzheimer, M. Schreiber, S. Braun, S. S. Hodgman, S. Langer, F. Heidrich-Meisner, I. Bloch, U. Schneider  
*Dynamical Quasicondensation of Hard-Core Bosons at Finite Momenta*  
Phys. Rev. Lett. **115**, 175301 (2015)
- 123** A. Omran, M. Boll, T. Hilker, K. Kleinlein, G. Salomon, I. Bloch, C. Gross  
*Microscopic Observation of Pauli Blocking in Degenerate Fermionic Lattice Gases*  
Phys. Rev. Lett. **115**, 263001 (2015)
- 122** M. Höfer, L. Riegger, F. Scazza, C. Hofrichter, D.R. Fernandes, M. M. Parish, J. Levinsen, I. Bloch, S. Fölling  
*Observation of an orbital interaction-induced Feshbach resonance in  $173\text{-Yb}$*   
Phys. Rev. Lett. **115**, 265302 (2015)
- 121** T. Li, L. Duca, M. Reitter, F. Grusdt, E. Demler, M. Endres, M. Schleier-Smith, I. Bloch, U. Schneider  
*Bloch state tomography using Wilson lines*  
Science **352**, 1094 (2016)
- 120** P. Bordia, H. P. Lüschen, S. S. Hodgman, M. Schreiber, I. Bloch, U. Schneider  
*Coupling Identical 1D Many-Body Localized Systems*  
Phys. Rev. Lett. **116**, 140401 (2016)



- 119** J. Zeiher, P. Schauß, S. Hild, T. Macrì, I. Bloch, Ch. Gross  
*Microscopic Characterization of Scalable Coherent Rydberg Superatoms*  
Phys. Rev. **X 5**, 031015 (2015)
- 118** M. Schreiber, S. S. Hodgman, P. Bordia, H. P. Lüschen, M. H. Fischer, R. Vosk, E. Altman, U. Schneider, I. Bloch  
*Observation of many-body localization of interacting fermions in a quasi-random optical lattice*  
Science **349**, 842 (2015)
- 117** M. Lohse, Ch. Schweizer, O. Zilberberg, M. Aidelsburger, I. Bloch  
*A Thouless Quantum Pump with Ultracold Bosonic Atoms in an Optical Superlattice*  
Nature Physics **12**, 350–354 (2016)
- 116** T. Fukuhara, S. Hild, J. Zeiher, P. Schauß, I. Bloch, M. Endres, Ch. Gross  
*Spatially Resolved Detection of a Spin-Entanglement Wave in a Bose-Hubbard Chain*  
Phys. Rev. Lett. **115**, 035302 (2015), DOI: 10.1103/PhysRevLett.115.035302
- 115** L. Vidmar, J. P. Ronzheimer, M. Schreiber, S. Braun, S. S. Hodgman, S. Langer, F. Heidrich-Meisner, I. Bloch, U. Schneider  
*Dynamical Quasicondensation of Hard-Core Bosons at Finite Momenta*  
Phys. Rev. Lett. **115**, 175301 (2015)
- 114** P. Schauß, J. Zeiher, T. Fukuhara, S. Hild, M. Cheneau, T. Macrì, T. Pohl, I. Bloch, Ch. Gross  
*Crystallization in Ising quantum magnets*  
Science **347**, 1455 (2015)
- 113** S. Braun, M. Friesdorf, S. S. Hodgman, M. Schreiber, J. P. Ronzheimer, A. Riera, M. del Rey, I. Bloch, J. Eisert, U. Schneider  
*Emergence of coherence and the dynamics of quantum phase transitions*  
PNAS **112**, 3461 (2015)
- 112** M. Aidelsburger, M. Lohse, C. Schweizer, M. Atala, J.T. Barreiro, S. Nascimbène, N.R. Cooper, I. Bloch, N. Goldman  
*Measuring the Chern number of Hofstadter bands with ultracold bosonic atoms*  
Nature Physics **11**, 162–166 (2015)
- 111** L. Duca, T. Li, M. Reitter, I. Bloch, M. Schleier-Smith, U. Schneider  
*An Aharonov-Bohm interferometer for determining Bloch band topology*  
Science **347**, 288-292 (2015)
- 110** S. Hild, T. Fukuhara, P. Schauss, J. Zeiher, M. Knap, E. Demler, I. Bloch, C. Gross  
*Far-from-equilibrium spin transport in Heisenberg quantum magnets*  
Phys. Rev. Lett. **113**, 147205 (2014)
- 109** U. Schneider, S. Mandt, A. Rapp, S. Braun, H. Weimer, I. Bloch, A. Rosch  
*Comment on “Consistent thermostatics forbids negative absolute temperatures”*  
arXiv:1407.4127



- 108** S. Braun, M. Friesdorf, S. Hodgman, M. Schreiber, J.P. Ronzheimer, A. Riera, M del Rey, I. Bloch, J. Eisert, U. Schneider  
*Emergence of coherence and the dynamics of quantum phase transitions*  
PNAS **112**, 3641 (2015)
- 107** F. Scazza, C. Hofrichter, M. Höfer, P. C. De Groot, I. Bloch, S. Fölling  
*Observation of two-orbital spin-exchange interactions with ultracold  $SU(N)$ -symmetric fermions*  
Nature Physics **10**, 779 (2014)
- 106** M. Atala, M. Aidelsburger, M. Lohse, J. T. Barreiro, B. Paredes, I. Bloch,  
*Observation of Chiral Currents with Ultracold Atoms in Bosonic Ladders*  
Nature Physics **10**, 588 (2014)
- 105** M. Knap, A. Kantian, Th. Giamarchi, I. Bloch, M. Lukin, E. Demler  
*Probing Real-Space and Time-Resolved Correlation Functions with Many-Body Ramsey Interferometry*  
Phys. Rev. Lett. **111**, 147205 (2013)
- 104** M. Aidelsburger, M. Atala, M. Lohse, J.T. Barreiro, B. Paredes, I. Bloch  
*Realization of the Hofstadter Hamiltonian with ultracold atoms in optical lattices*  
Phys. Rev. Lett. **111**, 185301 (2013)
- 103** T. Fukuhara, P. Schauß, M. Endres, S. Hild, M. Cheneau, I. Bloch, C. Gross  
*Microscopic observation of magnon bound states and their dynamics*  
Nature **502**, 76 (2013)
- 102** M. Aidelsburger, M. Atala, S. Nascimbène, S. Trotzky, Y.-A. Chen, I. Bloch  
*Experimental realization of strong effective magnetic fields in optical superlattice potentials*  
Appl. Phys. **B 113**, 1 (2013)
- 101** M. Endres, M. Cheneau, T. Fukuhara, C. Weitenberg, P. Schauß, C. Gross, L. Mazza, M. Carmen Banuls, L. Pollet, I. Bloch, S. Kuhr  
*Single-site- and single-atom-resolved measurement of correlation functions*  
Appl. Phys. **B 113**, 1 (2013)
- 100** J.P. Ronzheimer, M. Schreiber, S. Braun, S. Hodgman, S. Langer, I.P. McCulloch, F. Heidrich-Meisner, I. Bloch, U. Schneider  
*Expansion dynamics of interacting bosons in homogeneous lattices in one and two dimensions*  
Phys. Rev. Lett. **110**, 205301 (2013)
- 99** M. Atala, M. Aidelsburger, J.T. Barreiro, D. Abanin, T. Kitagawa, E. Demler, I. Bloch  
*Direct Measurement of the Zak Phase in Topological Bloch Bands*  
Nature Physics **9**, 795 (2013)
- 98** D. Abanin, T. Kitagawa, I. Bloch, E. Demler  
*Interferometric approach to measuring band topology in 2D optical lattices*  
Phys. Rev. Lett. **110**, 165304 (2013)
- 97** T. Fukuhara, A. Kantian, M. Endres, M. Cheneau, P. Schauß, S. Hild, D. Bellem, U. Schollwöck, Th. Giamarchi, Ch. Gross, I. Bloch, S. Kuhr  
*Quantum dynamics of a single, mobile spin impurity*  
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