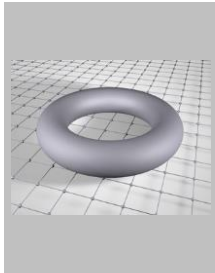


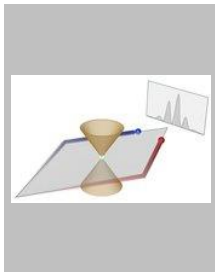
## Summary

- **>120 publications**, thereof  
**27 Nature/Science, 41 Physical Review Letters/Nature Physics**
- **Citation Metrics:**  
Google Scholar citations: **(total) >27300, h-index: 63**  
ISI Web of Science citations: **(total) >16860, h-index: 53,**  
**average citations per article > 159**

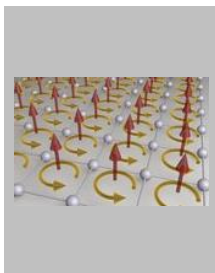
## Top Publications



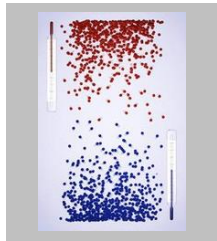
M. Aidelsburger, M. Lohse, C. Schweizer, M. Atala, J.T. Barreiro, S. Nascimbène, N.R. Cooper, I. Bloch, N. Goldman  
*Measuring the Chern number of Hofstadter bands with ultracold bosonic atoms*  
Nature Physics **11**, 162–166 (2015) , doi:10.1038/nphys3171  
published online (AOP), Dec. (2014)  
Citations (ISI Web of Science): 29, (Google scholar): 68



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), doi:10.1126/science.1259052  
Published online (Science Express), Dec. (2014)  
Citations (ISI Web of Science): 9, (Google scholar): 27



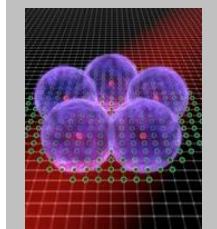
M. Aidelsburger, M. Atala, M. Lohse, J.T. Barreiro, B. Paredes, I. Bloch  
*Realization of the Hofstadter Hamiltonian with ultracold atoms in optical lattices*  
Phys. Rev. Lett. **111**, 185301 (2013)  
Citations (ISI Web of Science): 164, (Google scholar): 283



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)

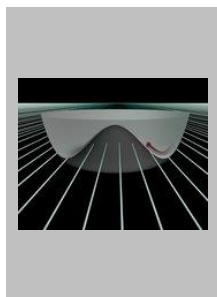
Citations (ISI Web of Science): 32, (Google scholar): 74



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): 120, (Google scholar): 201

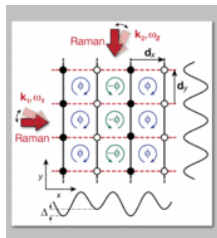


M. Endres, T. Fukuhara, D. Pekker, M. Cheneau, P. Schauss, Ch. Gross, E. Demler, S. Kuhr, I. Bloch

*The 'Higgs' amplitude mode at the two-dimensional superfluid-Mott insulator transition*

Nature **487**, 454 (2012)

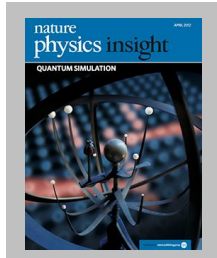
Citations (ISI Web of Science): 75, (Google scholar): 140



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): 239, (Google Scholar): 340

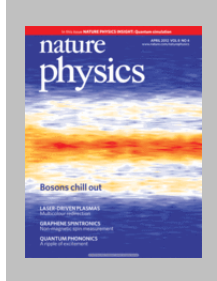


I. Bloch, J. Dalibard, S. Nascimbène

*Quantum simulations with ultracold quantum gases*

Nature Physics **8**, 267-276 (2012)

Citations (ISI Web of Science): 330, (Google Scholar): 559



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*

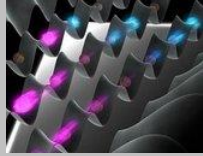
Nature Physics **8**, 325 (2012)

Citations (ISI Web of Science): 210, (Google Scholar): 361

Prof. Dr. Immanuel Felix Bloch

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

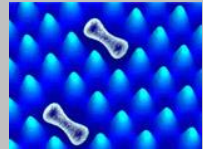
30 September, 2015



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): 179, (Google Scholar): 291*

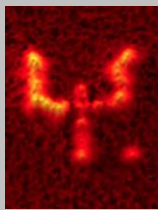


M. Endres, M. Cheneau, T. Fukuhara, Ch. Weitenberg, P. Schauss, L. Mazza, M.-C. Banuls, L. Pollet, I. Bloch, S. Kuhr

*Observation of Correlated Particle-Hole Pairs and String Order in Low-Dimensional Mott Insulators*

Science **334**, 200 (2011)

*Citations (ISI Web of Science): 89, (Google Scholar): 144*

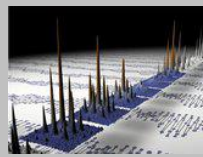


C. Weitenberg, M. Endres, J.F. Sherson, N. Cheneau, P. Schauß, T. Fukuhara, I. Bloch, S. Kuhr

*Single-Spin Addressing in an Atomic Mott Insulator*

Nature **471**, 319 (2011)

*Citations (ISI Web of Science): 248, (Google Scholar): 404*

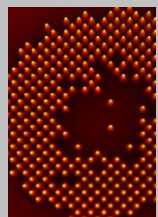


S. Will, T. Best, U. Schneider, L. Hackermüller, D. Lühmann, I. Bloch

*Time-resolved observation of coherent multi-body interactions in quantum phase revivals*

Nature **465**, 197 (2010)

*Citations (ISI Web of Science): 131, (Google Scholar): 188*

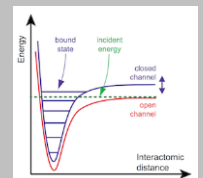


J.F. Sherson, Ch. Weitenberg, M. Endres, M. Cheneau, I. Bloch, S. Kuhr

*Single-atom-resolved fluorescence imaging of an atomic Mott insulator*

Nature **467**, 68 (2010)

*Citations (ISI Web of Science): 447, (Google Scholar): 716*

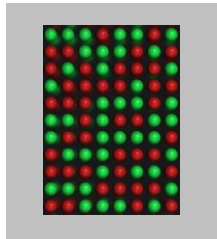


I. Bloch, J. Dalibard, W. Zwerger

*Many-body physics with ultracold gases*

Rev. Mod. Phys. **80**, 885 (2008)

*Citations (ISI Web of Science): 2758, (Google Scholar): 4161*

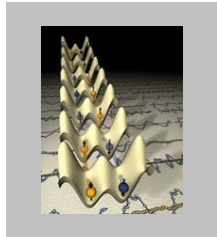


U. Schneider, L. Hackermüller, S. Will, Th. Best, I. Bloch, T. A. Costi, R.W. Helmes, D. Rasch, A. Rosch

*Metallic and Insulating Phases of Repulsively Interacting Fermions in an Optical Lattice*

Science 322, 1520 (2008)

Citations (ISI Web of Science): 402, (Google Scholar): 595

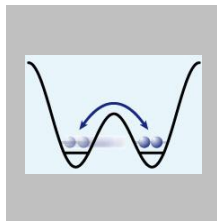


S. Trotzky, P. Cheinet, S. Fölling, M. Feld, U. Schnorrberger, A.M. Rey, A. Polkovnikov, E. Demler, M. Lukin, I. Bloch

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

Science 319, 295 (2008)

Citations (ISI Web of Science): 322, (Google Scholar): 473

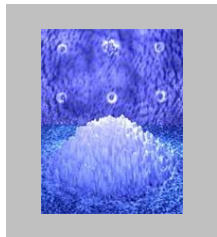


S. Fölling, S. Trotzky, P. Cheinet, M. Feld, R. Saers, T. Müller, A. Widera, I. Bloch

*Direct observation of second order atom tunnelling*

Nature 448, 1029 (2007)

Citations (ISI Web of Science): 271, (Google Scholar): 411

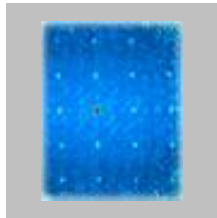


T. Rom, Th. Best, D. van Oosten, U. Schneider, S. Fölling, B. Paredes, I. Bloch

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

Nature 444, 733 (2006)

Citations (ISI Web of Science): 145, (Google Scholar): 250

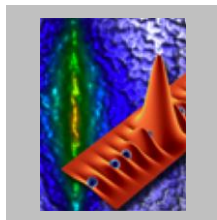


S. Fölling, F. Gerbier, A. Widera, O. Mandel, T. Gericke, I. Bloch

*Spatial quantum noise interferometry in expanding ultracold atom clouds*

Nature 434, 481 (2005)

Citations (ISI Web of Science): 317, (Google Scholar): 562

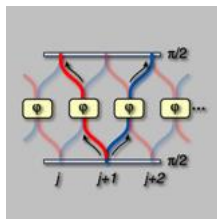


B. Paredes, A. Widera, V. Murg, O. Mandel, S. Fölling, I. Cirac, G. Shlyapnikov, T. W. Hänsch, I. Bloch

*Tonks-Girardeau gas in an optical lattice*

Nature 429, 277 (2004)

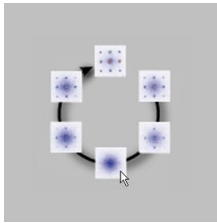
Citations (ISI Web of Science): 875, (Google Scholar): 1384



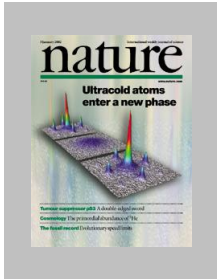
O. Mandel, M. Greiner, A. Widera, T. Rom, T.W. Hänsch, I. Bloch,  
*Controlled collisions for multi-particle entanglement of optically trapped atoms*

Nature 425, 937 (2003)

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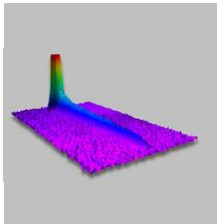
Greiner, M., O. Mandel, T.W. Hänsch, I. Bloch  
*Collapse and revival of the matter wave field of a Bose-Einstein condensate*  
Nature 419, 51 (2002)  
Citations (ISI Web of Science): 691, (Google Scholar): 979



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)  
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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): 203, (Google Scholar): 367



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): 406, (Google Scholar): 717

# List of Publications

- 125** 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-Yb*  
arXiv: 1509.04257 (2015)
- 124** T. Li, L. Duca, M. Reitter, F. Grusdt, E. Demler, M. Endres, M. Schleier-Smith, I. Bloch, U. Schneider  
*Experimental reconstruction of Wilson lines in Bloch bands*  
arXiv: 1509.02185 (2015)
- 123** P. Bordia, H. P. Lüschen, S. S. Hodgman, M. Schreiber, I. Bloch, U. Schneider  
*Coupling Identical 1D Many-Body Localized Systems*  
arXiv: 1509.00478 (2015)
- 122** 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)
- 121** 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)
- 120** M. Lohse, Ch. Schweizer, O. Zilberberg, M. Aidelsburger, I. Bloch  
*A Thouless Quantum Pump with Ultracold Bosonic Atoms in an Optical Superlattice*  
arXiv:1507.02225 (2015)
- 119** 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
- 118** 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*  
arXiv: 1505.05150 (2015)
- 117** 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), DOI: 10.1126/science.1258351

Prof. Dr. Immanuel Felix Bloch

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

30 September, 2015

- 116** 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)
- 115** 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 (2015) Science Express (2014)
- 114** S. Hild, T. Fukuhara, P. Schauß, J. Zeiher, M. Knap, E. Demler, I. Bloch, Ch. Gross  
*Far-from-equilibrium spin transport in Heisenberg quantum magnets*  
Phys. Rev. Lett **113**, 147205 (2014)
- 113** 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 (AOP), Dec. 2014
- 112** L. Duca, T. Li, M. Reitter, I. Bloch, M. Schleier-Smith, U. Schneider  
*An Aharonov-Bohm interferometer for determining Bloch band topology*  
Science (express), doi:10.1126/science.1259052 (2014)
- 111** 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)
- 110** P. Schauss, J. Zeiher, T. Fukuhara, S. Hild, M. Cheneau, T. Macro, T. Pohl, I. Bloch, Ch. Gross  
*Dynamical crystallization in a low-dimensional Rydberg gas*  
arXiv:1404.0980
- 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*  
arXiv:1403.7199
- 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, 'Online First', doi:10.1007/s00340-013-5418-1
- 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, 'Online First', doi:10.1007/s00340-013-5552-9
- 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*  
Nature Physics **9**, 235 (2013)
- 96** 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)



- 95** 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)
- 94** 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)
- 93** S. Nascimbène, Y.-A. Chen, M. Atala, M. Aidelsburger, S. Trotzky, B. Paredes, I. Bloch  
*Experimental realization of plaquette resonating valence-bond states with ultracold atoms in optical lattices*  
Phys. Rev. Lett. **108**, 205301 (2012)
- 92** I. Bloch, J. Dalibard, S. Nascimbène  
*Quantum simulations with ultracold atoms*  
Nature Physics **8**, 267 (2012)
- 91** 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)
- 90** U. Schneider, L. Hackermüller, J.-P. Ronzheimer, S. Will, S. Braun, Th. Best, I. Bloch, E. Demler, S. Mandt, D. Rasch, A. Rosch  
*Fermionic transport and out-of-equilibrium dynamics in a homogeneous Hubbard model with Ultracold atoms*  
Nature Physics **8**, 213 (2012)
- 89** 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)
- 88** 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)
- 87** M. Endres, M. Cheneau, T. Fukuhara, Ch. Weitenberg, P. Schauss, L. Mazza, M.-C. Banuls, L. Pollet, I. Bloch & S. Kuhr  
*Direct Observation of Quantum Correlated Particle Hole Pairs and Non-Local String Order in Low Dimensional Mott Insulators*  
Science **334**, 200 (2011)

- 86** Y.-A. Chen, S. Nascimbene, M. Aidelsburger, M. Atala, S. Trotzky & I. Bloch  
*Controlling Correlated Tunneling and Superexchange Interactions with AC-Driven Optical Lattices*  
Phys. Rev. Lett. **107**, 210405 (2011)
- 85** C. Kasztelan, S. Trotzky, Y.-A. Chen, I. Bloch, I.P. McCulloch, U. Schollwöck, G. Orso  
*Landau-Zener sweeps and sudden quenches in coupled Bose-Hubbard chains*  
Phys. Rev. Lett. **106**, 155302 (2011)
- 84** M. Snoek, I. Titvinidze, I. Bloch & W. Hofstetter  
*Effect of Interactions on Harmonically Confined Bose-Fermi Mixtures in Optical Lattices*  
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