

Publication List

- (1) Ursula B. Hansen, **Olav F. Syljuåsen**, Jens Jensen, Turi K. Schäffer, Christopher R. Andersen, Jose A. Rodriguez-Rivera, Niels B. Christensen, and Kim Lefmann, "Evidence of Magnetic Bloch Oscillations and Zero-field Domain Wall Dynamics in $\text{CoCl}_2 \cdot 2\text{D}_2\text{O}$ ", To be submitted.
- (2) **Olav F. Syljuåsen**, Jens Paaske, and Michael Schechter, "Interplay between Magnetic and Vestigial Nematic Orders in the Layered J_1 - J_2 Classical Heisenberg Model", arXiv:1901.07234, Submitted to PRB, Jan. 2019.
- (3) Zheng Yan, Yongzheng Wu, Chenrong Liu, **Olav F. Syljuåsen**, Jie Lou and Yan Chen, "Sweeping cluster algorithm for quantum spin systems with strong geometric restrictions", arXiv:1809.05792, Submitted to PRL, Sept. 2018.
- (4) Michael Schechter, **Olav F. Syljuåsen**, and Jens Paaske, "Cooper Pair Induced Frustration and Nematicity of Two-Dimensional Magnetic Adatom Lattices", arXiv:1710.08439, Phys. Rev. B. **97**, 174412 (2018).
- (5) Michael Schechter, **Olav F. Syljuåsen**, and Jens Paaske, "Nematic Bond Theory of Heisenberg Helimagnets", arXiv:1705.08917, Phys. Rev. Lett. **119**, 157202 (2017)
- (6) **Olav F. Syljuåsen**, "Dynamical Structure Factor of Magnetic Bloch Oscillations at Finite Temperatures", arXiv:1506.05614, European Physical Journal B, **88**, 252 (2015)
- (7) P. S. Häfliger, S. Gerber, R. Pramod, V. I. Schnells, B. dalla Piazza, R. Chati, V. Pomjakushin, K. Conder, E. Pomjakushina, L. Le Dreau, N. B. Christensen, **O. F. Syljuåsen**, B. Normand, and H. M. Rønnow "Quantum and thermal ionic motion, oxygen isotope effect, and superexchange distribution in La_2CuO_4 ", arXiv:1312.0633, Phys. Rev. B **89**, 085113 (2014)
- (8) Sergey Shinkevich and **Olav F. Syljuåsen**, "Numerical simulations of laser-excited magnetic Bloch oscillations", arXiv:1210.6200, Phys. Rev. B **87**, 060401(R) (2013)
- (9) K. G. L. Pedersen, B. M. Andersen, **O. F. Syljuåsen**, G. M. Bruun, A. S. Sørensen, "Inducing spin-dependent tunneling to probe magnetic correlations in optical lattices", arXiv:1203.0925, Phys. Rev. A **85**, 053642 (2012)
- (10) Sergey Shinkevich and **Olav F. Syljuåsen**, "Spectral signatures of magnetic Bloch oscillations in one-dimensional easy-axis ferromagnets", arXiv:1112.6195, Phys. Rev. B **85**, 104408 (2012)
- (11) K. G. L. Pedersen, B. M. Andersen, G. M. Bruun, **O. F. Syljuåsen**, A. S. Sørensen, "Measuring spin correlations in optical lattices using superlattice potentials", arXiv:1105.4466, Phys. Rev. A **84**, 041603(R) (2011)
- (12) S. Shinkevich, **O. F. Syljuåsen**, S. Eggert, "Spin wave calculation of the field-dependent magnetization pattern around an impurity in Heisenberg antiferromagnets", arXiv:1011.1271, Phys. Rev. B **83**, 054423 (2011)

- (13) V. V. Cheianov, **O. Syljuasen**, B. L. Altshuler, V. I. Falko “Sublattice ordering in a dilute ensemble of monovalent adatoms on graphene”, arXiv:1002.2330, Europhysics Letters **89**, (5) 56003 (2010)
- (14) V. V. Cheianov, **O. Syljuasen**, B. L. Altshuler, V. I. Falko “Ordered states of adatoms on graphene”, arXiv:0909.2988, Phys. Rev. B **80**, 233409 (2009)
- (15) G. M. Bruun, **O. F. Syljuåsen**, K. G. L. Pedersen, B. M. Andersen, E. Demler and A. S. Sørensen, “Antiferromagnetic noise correlations in optical lattices”, arXiv:0907.0652, Phys. Rev. A **80**, 033622 (2009) also selected to the October 2009 issue of the Virtual Journal of Atomic Quantum Fluids.
- (16) V. V. Cheianov, V. I. Falko, **O. Syljuasen**, B. L. Altshuler, “Partial Kekule Ordering of Adatoms on Graphene”, arXiv:0906.5174, Solid State Comm. **149**, 149 9 (2009)
- (17) Brian M. Andersen, **Olav F. Syljuåsen** and Per Hedegård, “Magnetic field-induced soft mode in spin-gapped high- T_c superconductors”, Phys. Rev. B **80**, 052509 (2009), arXiv:0904.3404
- (18) **Olav F. Syljuåsen**, “Numerical evidence for unstable magnons at high fields in the Heisenberg antiferromagnet on the square lattice”, Phys. Rev. B **78**, 180413(R) (2008) (Editors Suggestion), arXiv:0807.1837
- (19) **Olav F. Syljuåsen**, “Using the Average Spectrum Method to extract Dynamics from Quantum Monte Carlo simulations” Phys. Rev. B **78**, 174429 (2008) arXiv:0705.4173
- (20) Sebastian Eggert, **Olav F. Syljuåsen**, Fabrizio Anfuso, and Markus Andres “Universal Alternating Order around Impurities in Antiferromagnets”, Phys. Rev. Lett. **99**, 097204 (2007).
- (21) **Olav F. Syljuåsen**
“Length-Dependent Conductance of a Spin-Incoherent Hubbard Chain: Monte Carlo Calculations” Phys. Rev. Lett. **98**, 166401 (2007) (cond-mat/0609742), also selected to the April 30, 2007 issue (Vol 15, issue 17) of the Virtual Journal of Nanoscale Science & Technology.
- (22) Brian M. Andersen and **Olav F. Syljuåsen**
“Magnetic excitations of coupled spin ladders: a quantum Monte Carlo study” Phys. Rev. B **75**, 012506 (2007) (cond-mat/0608251).
- (23) V. Apaja and **Olav F. Syljuåsen**
“Dimerized ground state in the one dimensional spin-1 boson Hubbard model” Phys. Rev. A **74**, 035601 (2006).
- (24) A. Isacsson and **Olav F. Syljuåsen**
“Variational treatment of the Shastry-Sutherland antiferromagnet using projected entangled pair states” Phys. Rev. E **74**, 026701 (2006). (cond-mat/0604134)

- (25) **Olav F. Syljuåsen**
 “Plaquette phase of the square lattice quantum dimer model”
Phys. Rev. B **73**, 245105 (2006). (cond-mat/0512579)
- (26) **Olav F. Syljuåsen** and Sudip Chakravarty
 “Resonating plaquette phase of a quantum six-vertex model”
Phys. Rev. Lett. **96**, 147004 (2006). (cond-mat/0509624).
- (27) **Olav F. Syljuåsen** and A. Luther
 “Adjacent face scattering and stability of the square Fermi surface”
Phys. Rev. B **72**, 165105 (2005) (cond-mat/0506684).
- (28) **Olav F. Syljuåsen**
 “Random walks near Rokhsar-Kivelson points”
Int. Jour. Mod. Phys. B **19**(12), 1973-1993 (2005) (cond-mat/0504195).
- (29) V. Apaja and **Olav F. Syljuåsen**
 “Monte Carlo Simulation of Boson lattices”
 Proceedings of the “13th Intl. Conf. on Recent Progress in Many-Body Theories”,
 Buenos Aires, Argentina 5-9. Dec. 2005 Eds. S. Hernandez and H.Cataldo (World Scientific, Series on Advances in Quantum Many-Body Theory vol. 10)(cond-mat/0603402).
- (30) **Olav F. Syljuåsen**
 “Diffusion Monte Carlo in Continuous Time”
Journal of Low Temperature Physics **140** (3-4), 281-292 (2005)
- (31) **Olav F. Syljuåsen**
 “Continuous-time diffusion Monte Carlo method applied to the quantum dimer model”
Phys. Rev. B **71**, 020401(R) (2005) (cond-mat/0408565)
- (32) **Olav F. Syljuåsen** and M. B. Zvonarev
 “Directed-loop Monte Carlo simulations of vertex models”
Phys. Rev. E **70**, 016118 (2004) (cond-mat/0401491)
- (33) **Olav F. Syljuåsen**
 “Concurrence in the two dimensional XXZ- and transverse field Ising-models”
Phys. Lett. A **322** (1-2), 25-30 (2004) (quant-ph/0312101)
- (34) **Olav F. Syljuåsen**
 “Entanglement and Spontaneous Symmetry Breaking in Quantum Spin Models”
Phys. Rev. A 68, R060301 (2003), (quant-ph/0309087), also selected to the Virtual Journal of Nanoscale Science & Technology, **8** (24)and to the December 2003 issue of Virtual Journal of Quantum Information
- (35) Anders W. Sandvik and **Olav F. Syljuåsen**
 “The directed-loop algorithm”
 Proceedings of “The Monte Carlo Method in the Physical Sciences:
 Celebrating the 50th Anniversary of the Metropolis Algorithm”,
 Los Alamos June 9-11. 2003, Ed. James E. Gubernatis, AIP Conference Proceedings 690, pp 209-308 (2003) ISBN 0-7354-0162-4 (cond-mat/0306542)
- (36) **Olav F. Syljuåsen**
 “Directed Loop updates for Quantum Lattice Models”

Phys. Rev. E **67**, 046701 (2003), (cond-mat/0211513)

- (37) **Olav F. Syljuåsen** and Anders W. Sandvik
“Quantum Monte Carlo with directed loops”
Phys. Rev. E **66**, 046701 (2002) (cond-mat/0202316) (**among top cited PRE of 2002**)
- (38) **Olav F. Syljuåsen** and Patrick A. Lee
“Anomalous spin excitation spectrum of the Heisenberg model in a magnetic field”
Phys. Rev. Lett. **88**, 207207 (2002) (cond-mat/0110133)
- (39) H.M. Rønnow, D.F. McMorrow, A. Harrison, I.D. Youngson, R. Coldea,
T.G. Perring, G. Aeppli, **O.F. Syljuåsen**, K. Lefmann and C. Rischel
“Spin dynamics of a model 2D quantum antiferromagnet”
Phys. Rev. Lett. **87**, 37202 (2001) (cond-mat/0101238)
Reply to comment Phys. Rev. Lett. **89**, 079702 (2002)
- (40) Ronnow HM, McMorrow DF, Harrison A, Youngson ID, Coldea R,
Perring TG, Aeppli G, **Syljuasen O**
“Correlations and fluctuations in the 2D Heisenberg antiferromagnet”
Journal of Magnetism and Magnetic Materials **236** (1-2): 4-5 (2001)
- (41) **Olav F. Syljuåsen** and Henrik M. Rønnow,
“Quantum renormalization of high energy excitations in the
2D Heisenberg antiferromagnet”,
Jour. Phys. Condensed Matter **12** (2000) L405-408. (cond-mat/0003350)
- (42) **Olav F. Syljuåsen**,
“ σ -Model Approach to Spin Ladders”,
Int. Jour. Mod. Phys. B **14**, (5), 457-473 (2000).
- (43) **Olav F. Syljuåsen**,
“Loop algorithms for asymmetric Hamiltonians”,
Phys. Rev. B **61**, R846-849 (2000). (cond-mat/9907142)
- (44) **Olav F. Syljuåsen**, Sudip Chakravarty, and Martin Greven,
“Correlation Lengths in Quantum Spin Ladders”,
Phys. Rev. Lett. **78**, 4115-4118 (1997). (cond-mat/9701197)
- (45) **Olav F. Syljuåsen**,
“Gauge invariance of the β -function in nonrelativistic quantum electrodynamics”,
Nucl. Phys. B **493**, 707-718 (1997). (cond-mat/9608051)
- (46) S. Chakravarty, R.E. Norton and **O.F. Syljuåsen**,
“Transverse Gauge Interactions and the Vanquished Fermi Liquid”,
Phys. Rev. Lett. **74**, 1423-1426 (1995),
Reply to Comment, Phys. Rev. Lett. **75**, 3584 (1995).
- (47) **Olav F. Syljuåsen** and H.A. Olsen,
“Limits on supersymmetric masses from the anomalous magnetic moment of leptons”,
Physica Scripta **48**, 525-526 (1993).

Outreach activity:

- (48) **Olav F. Syljuåsen**,
“Bloch Oscillations”, Youtube video with Numerical simulations of Bloch Oscillations.
www.youtube.com/watch?v=qgGyuCt2gck&t=29s, July 5. 2017.
- (49) **Olav F. Syljuåsen**, “Nye faser i to dimensjoner?”,
in Norwegian, Fra Fysikkens Verden **4**, 118-120 (1999).
(Membership magazine of the Norwegian Physical Society)