

**The Chinese University of Hong Kong
Institute of Theoretical Physics**

Publication List 2010-11

1. He, XZ; Tong, PG; Ching, ESC, "Statistics of the locally averaged thermal dissipation rate in turbulent Rayleigh-Benard convection", *Journal of Turbulence* 11, pp.1-10, 2010
2. Zhang, C; Chen, XJ; Li, YL; Struzhkin, VV; Hemley, RJ; Mao, HK; Zhang, RQ; Lin, HQ, "Superconductivity in Hydrogen-rich Material: GeH₄", *Journal of Superconductivity and Novel Magnetism* 23, pp.717-719, Jul-2010.
3. You, WL; Tian, GS; Lin, HQ, "The low-energy states and directional long-range order in the two-dimensional quantum compass model", *Journal of Physics A* 43, 275001, 9-Jul-2010.
4. Ching, ESC, "Studying anomalous scaling and heat transport of turbulent thermal convection using a dynamical model", *Physica D* 239, pp.1346-1352, 15-Jul-2010.
5. Ma, ZQ; Yang, CN, "Spin 1/2 Fermions in 1D Harmonic Trap with Repulsive Delta Function Interparticle Interaction", *Chinese Physics Letters* 27, 080501, Aug-2010.
6. Lo, CF, "Dynamics of Fokker-Planck Equation with Logarithmic Coefficients and Its Application in Econophysics", *Chinese Physics Letters* 27, 080503, Aug-2010.
7. Zhou, YA; Lin, HQ; Gong, CD, "Two-step evolution of doping dependent antiferromagnetism and charge imbalance in multilayered cuprates", *Physics Letters A* 374, pp.4065-4070, 30-Aug-2010.
8. Ma, ZQ; Yang, CN, "Bosons or Fermions in 1D Power Potential Trap with Repulsive Delta Function Interaction", *Chinese Physics Letters* 27, 090505, Sep 2010.
9. Zhang, C; Chen, XJ; Zhang, RQ; Lin, HQ, "Chemical Trend of Pressure-Induced Metallization in Alkaline Earth Hydrides", *Journal of Physical Chemistry C* 114, pp.14614-14617, 2-Sep-2010.
10. Chung, CK; Law, CK, "Pairing and coherence order parameters in a three-component ultracold Fermi gas", *Physical Review A* 82, 033620, 29-Sep-2010.
11. Wei, EB; Sun, L; Yu, KW, "Controlling electric field distribution by graded spherical core-shell metamaterials", *Chinese Physics B* 19, 107802, Oct 2010.
12. Wang, WH; Cheng, YH; Lu, F; Luo, XG; Lin, HQ; Zou, LJ, "Phase separation of t-J-V model on a triangular lattice: Possible application to heavily doped Na_xCoO₂", *Physics Letters A* 374, pp.4718-4723, 18-Oct-2010.
13. Jia, T; Wu, H; Zhang, GR; Zhang, XL; Guo, Y; Zeng, Z; Lin, HQ, "Spin states of Co ions in La_{1.5}Ca_{0.5}CoO₄ from first principles", *Physical Review B* 82, 205107, 3-Nov-2010.
14. Chen, S; Cao, JP; Gu, SJ, "Mixture of Tonks-Girardeau gas and Fermi gas in one-dimensional optical lattices", *Physical Review A* 82, 053625, 22-Nov-2010.
15. Liao, JQ; Law, CK, "Correlated two-photon transport in a one-dimensional waveguide side-coupled to a nonlinear cavity", *Physical Review A* 82, 053836, 29-Nov-2010.
16. Zheng, MJ; Wang, G; Yu, KW, "Tunable hybridization at midzone and anomalous Bloch-Zener oscillations in optical waveguide ladders", *Optics Letters* 35, pp.3865-3867, 1-Dec-2010.

17. Li, HR; Wang, LG; Li, GX; Li, FL; Zhu, SY, "Generation of two-mode entangled states in a four-level atomic system via the Raman process", *Optics Communications* 283, pp.5269-5274, 15-Dec 2010.
18. Hu, FM; Ma, TX; Lin, HQ, "Numerical study of geometrical frustration. From square to triangular lattices", *Computer Physics Communications* 182, pp.74-76, Jan-2011.
19. He, XZ; Ching, ESC; Tong, PE, "Locally averaged thermal dissipation rate in turbulent thermal convection: A decomposition into contributions from different temperature gradient components", *Physics of Fluids* 23, 025106, Feb-2011.
20. Yang, CN; You, YZ, "One-Dimensional w-Component Fermions and Bosons with Repulsive Delta Function Interaction", *Chinese Physics Letters* 28, 020503, Feb-2011.
21. Chan, MH; Chu, MC, "Observational Evidences for the Existence of 17.4 Kev Decaying Degenerate Sterile Neutrinos Near the Galactic Center", *Astrophysical Journal Letters* 727, L47, 1-Feb-2011.
22. Lo, KW; Lin, LM, "The Spin Parameter of Uniformly Rotating Compact Stars", *Astrophysical Journal* 728, 12, 10-Feb-2011.
23. Lin, H; Li, YL; Zeng, Z; Chen, XJ; Lin, HQ Structural, electronic, and dynamical properties of methane under high pressure *JOURNAL OF CHEMICAL PHYSICS* 134 064515 14-Feb 2011
24. Ni, YC; Yin, HP; Xu, C; Hui, PM, "Analyzing phase diagrams and phase transitions in networked competing populations", *European Physical Journal B* 80, pp.233-241, Mar-2011.
25. Zheng, MJ; Lei, DY; Yakubo, K; Yu, KW Asymmetric Propagation of Optical Signals in Graded Plasmonic Chains *PLASMONICS* 6 19 27 MAR 2011
26. Zheng, MJ; Chan, YS; Yu, KW, "Harmonic oscillations and their switching in elliptical optical waveguide arrays", *Journal of Optics* 13, 035708, Mar-2011.
27. Graser, O; Hui, PM; Xu, C, "Separatrices between healthy and endemic states in an adaptive epidemic model", *Physica A* 390, pp.906-913, 1-Mar-2011.
28. Zhang, YJ; Wu, J; Leung, PT, "High-frequency behavior of w-mode pulsations of compact stars", *Physical Review D* 83, 064012, 8-Mar-2011.
29. Ling, CW; Zheng, MJ; Yu, KW, "Tunable hybridization in metal nanoshell chains", *Journal of Physics* 23, 105304, 16-Mar-2011.
30. Liao, JQ; Law, CK, "Parametric generation of quadrature squeezing of mirrors in cavity optomechanics", *Physical Review A* 83, 033820, 18-Mar-2011.
31. Chan, MH; Chu, MC, "Astronomical constraints on properties of sterile neutrino dark matter", *Astrophysics and Space Science* 332, pp.437-440, Apr 2011.
32. Jia, T; Zhang, GR; Zhang, XL; Guo, Y; Zeng, Z; Lin, HQ, "Magnetic frustration in alpha-NaMnO₂ and CuMnO₂", *Journal of Applied Physics* 109, 07E102, 1-Apr-2011.
33. Zhong, GH; Wang, JL; Li, YL; Liu, Z; Lin, HQ, "High-pressure and substitution induced effects in SrRuO₃: First-principles insights", *Journal of Applied Physics* 109, 07E163, 1-Apr-2011.
34. Zheng, MJ; Chan, YS; Yu, KW, "Photonic Bloch-dipole-Zener oscillations in binary parabolic optical waveguide arrays", *Journal of the Optical Society of America B* 28, pp.1339-1343, May-2011.

35. Xu, C; Ji, M; Yap, YJ; Zheng, DF; Hui, PM, “Costly punishment and cooperation in the evolutionary snowdrift game”, *Physica A* 390, pp.1607-1614, 1-May 2011.
36. Liao, JQ; Huang, JF; Kuang, LM, “Quantum thermalization of two coupled two-level systems in eigenstate and bare-state representations”, *Physical Review A* 83, 052110, 10-May-2011.
37. Wong, MTC; Law, CK, “Two-polariton bound states in the Jaynes-Cummings-Hubbard model”, *Physical Review A* 83, 055802, 16-May-2011.
38. Jia, T; Wu, H; Zhang, GR; Zhang, XL; Guo, Y; Zeng, Z; Lin, HQ, “Ab initio study of the giant ferroelectric distortion and pressure-induced spin-state transition in BiCoO_3 ”, *Physical Review B* 83, 174433, 23-May-2011.
39. Zheng, MJ; Chan, YS; Yu, KW, “Light propagation and oscillations in two-dimensional graded square photonic lattices”, *Optics Communications* 284, pp.3269-3275, 15-Jun-2011.