

# CHEN-YEN LAI

## Publication List

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### Publication List (My papers on arXiv)

- Haiyuan Zou, Yuzhi Liu, **Chen-Yen Lai**, J. Unmuth-Yockey, A. Bazavov, Z.Y. Xie, T. Xiang, S. Chandrasekharan, Shan-Wen Tsai, and Y. Meurice, “Towards quantum computing for the classical  $O(2)$  model.” Submitted to Phys. Rev. Lett. ([arXiv:1403.5238](https://arxiv.org/abs/1403.5238))
- **Chen-Yen Lai**, Shan-Wen Tsai, “Exotic Density Wave Order of Dipolar Fermions on Square Lattice of Bilayer System.” In preparation.
- **Chen-Yen Lai**, Wen-Min Huang, David K. Campbell, and Shan-Wen Tsai, “ $d_{xy}$ -density wave in fermion-fermion cold atom mixtures.” Submitted to Phys. Rev. Lett. ([arXiv:1307.2242](https://arxiv.org/abs/1307.2242))
- Wen-Min Huang, **Chen-Yen Lai**, Chuntai Shi, Shan-Wen Tsai, “Unconventional superconducting phases on a two-dimensional extended Hubbard model.” *Phys. Rev. B* **88**, 054504 (2013).
- **Chen-Yen Lai**, Chuntai Shi, Shan-Wen Tsai, “Correlated phases of population imbalanced Fermi-Fermi mixtures on an optical lattice.” *Phys. Rev. B* **87**, 075134 (2013).
- Pochung Chen, **Chen-Yen Lai**, Min-Fong Yang, “Field Induced Spin Supersolidity in Frustrated Spin-1/2 Spin-Dimer Models.” *Phys. Rev. B* **81**, 020409(R) (2010).
- Pochung Chen, **Chen-Yen Lai**, and Min-Fang Yang, “Numerical Study of Spin-1/2 XXZ Model on Square Lattice from Tensor Product States.” *J. Stat. Mech.: Theory Exp.* (2009) P10001.
- Chi-Ming Chang, Wei-Chao Shen, **Chen-Yen Lai**, Pochung Chen, and Daw-Wei Wang, “Spontaneous inter-wire coherence of polar molecules in double-wire systems.” *Phys. Rev. A* **79**, 053630 (2009).
- **Cheng-Yan Lai**, Jo-Tzu Hung, Chung-Yu Mou and Pochung Chen, “Induced decoherence and entanglement by interacting quantum spin baths.” *Phys. Rev. B* **77**, 205419(2008).

### Conference Paper

- Pochung Chen, **Cheng-Yan Lai**, Jo-Tzu Hung, and Chung-Yu Mou, “Quantum Spin Baths Induced Transition of Decoherence and Entanglement”, AIP Conf. Proc. 1074, 72-78 (2008) doi: [10.1063/1.3037141](https://doi.org/10.1063/1.3037141), [2nd International Workshop on Solid-State Quantum Computing/Mini-School on Quantum Information Science, Taipei, TAIWAN, JUN 23-27, 2008].

### Conference Presentations (\*Presenter)

- **Chen-Yen Lai\***, Wen-Min Huang, David Campbell, Shan-Wen Tsai, “ $d_{xy}$ -density wave in fermion-fermion cold atom mixtures.” APS March Meeting 2014.
- Yannick Meurice\*, Alexei Bozavov, Yuzhi Liu, **Chen-Yen Lai**, and Shan-Wen Tsai, “Improving the Hubbard-Lattice Gauge Theory correspondence on optical lattices.” APS March Meeting 2014.
- **Chen-Yen Lai\***, Shan-Wen Tsai, “Dipolar Fermions in Quasi-Two-Dimensional Square Lattice.” APS March Meeting 2013.
- **Chen-Yen Lai\***, Chuntai Shi, Shan-Wen Tsai, “Instabilities of Spin-polarized Fermions in Optical Lattice.” DAMOP 43th Annual Meeting 2012.
- **Chen-Yen Lai\***, Chuntai Shi, Shan-Wen Tsai, “Pairing and Density-Wave Phases of Population Imbalanced Fermi-Fermi Mixture on Optical Lattice.” APS March Meeting 2012.

- Pochung Chen\*, Min-Fong Yang, and **Chen-Yen Lai**, “*Field-induced spin supersolidity in frustrated  $S = 1/2$  spin-dimer models.*” [International workshop on DRMG and other advances in NRG](#), IOP, Beijing.
- Pochung Chen\*, Min-Fong Yang, and **Chen-Yen Lai**, “*Numerical study of spin-1/2 XXZ model on square lattice from tensor product states.*” Workshop on Quantum Condensation, APCTP Korea.
- **Cheng-Yan Lai**\* and Pochung Chen, “*Single Spin Decoherence by General Spin Chains.*” APS March Meeting 2007.

#### Other Publication

- Chen-Yen Lai, **Spin Qubit Decoherence by Spin Bath – a Time-Dependent DMRG Study**, [Master Thesis](#), July 2007.