Pan Zhang, Professor
Institute of Theoretical Physics, Chinese Academy of Sciences

PERSONAL DATA

Year of Birth：1983
Nationality：China
Mail: Zhong-guan-cun-dong-lu 55, Beijing, China
E-mail：   panzhang@itp.ac.cn
[Website]   [Google Scholar Profile]

PRINCIPAL RESEARCH EXPERTISE

Statistical physics of complex systems
Statistical inference, machine learning, graphical models
Combinatorial optimization problems, random matrix theory
Spin glass theory, cavity method, disordered systems
Tensor networks
Quantum computation

EMPLOYMENT

2019.01 – now   Professor,
                       [Institute of Theoretical Physics], Chinese academy of sciences

2015.09 – 2018.12   Associate Professor,
                       [Institute of Theoretical Physics], Chinese academy of sciences

2013.06 – 2015.09   Postdoctoral research fellow, with [Cristopher Moore]
                       Santa Fe Institute, Santa Fe, U.S.A.

2012.02 – 2013.05   Postdoctoral research fellow, with [Florent Krzakala]
                       E.S.P.C.I. Paris, France

2009.10 – 2012.01   Postdoctoral research fellow, with [Riccardo Zecchina]
                       Politecnico di Torino, Turin, Italy

EDUCATION

2004.09 – 2009.07   Ph.D. Theoretical Physics, Lanzhou University, Lanzhou, China.
                       Supervisor: Yong Chen
2007.10 – 2009.07   Joint Ph.D. program, Institute of Theoretical Physics,
                       Chinese Academy of Sciences.
                       Supervisor: [Haijun Zhou]
2000.09 – 2004.07   B.S. Theoretical Physics, Lanzhou University, Lanzhou , China.

LANGUAGES
- Native Mandarin
- Fluent English
- Very basic Italian and French

SELECTED PUBLICATIONS
(See my Google Scholar Profile for the full publication list)

Simulation of Quantum Circuits Using the Big-Batch Tensor Network Method
F Pan, P Zhang
Physical Review Letters 128, 030501 (2022) [PRL editor suggestion]

Tropical tensor network for ground states of spin glasses
JG Liu, L Wang, P Zhang
Physical Review Letters 126, 090506 (2021)

Contracting arbitrary tensor networks: general approximate algorithm and applications in graphical models and quantum circuit simulations
F Pan, P Zhou, S Li, P Zhang
Physical Review Letters 125, 060503 (2020)

Yao. jl: Extensible, Efficient Framework for Quantum Algorithm Design
XZ Luo, JG Liu, P Zhang, L Wang
Quantum 4, 341 (2020)

Solving Statistical Mechanics using Variational Autoregressive Networks
D Wu, L Wang, P Zhang
Physical Review Letters 122, 080602 (2019) *[PRL editor suggestion]*

Unsupervised generative modeling using matrix product states
ZY Han, J Wang, H Fan, L Wang, P Zhang
Physical Review X 8, 031012 (2018)

Robust Spectral Detection of Global Structures in the Data by Learning a Regularization
Pan Zhang
Neural Information Processing Systems 20, 541(*2016*)

Detectability thresholds and optimal algorithms for community structure in dynamic networks
A. Ghasemian, P. Zhang, A. Clauset, C. Moore, L. Peel
Physical Review X 6, 031005 (2016)

Spectral redemption in clustering sparse networks [620 citations]
F. Krzakala, C. Moore, E. Mossel, J. Neeman, A. Sly, L. Zdeborova and P. Zhang
Proceedings of National Academy of Sciences 110, 20935 (2013)

Scalable detection of statistically significant communities and hierarchies, using message-passing for modularity
Pan Zhang and Cristopher Moore
Proceedings of National Academy of Sciences 111, 18144 (2014)