



## Phenomena and findings in pressurized high-T<sub>c</sub> superconductors

### 【摘要】

The unconventional superconductivity of a given material is dictated by multiple degrees of freedom of charge, spin, orbital, and lattice. These degrees of freedom, as well as the interactions among them, can be manipulated by the control parameters such as pressure, magnetic field, and chemical doping. Pressure tuning is a clean way to provide significant information on coevolution among superconductivity, electronic state, and crystal structure without changing the chemistry, which may often lead to a deeper understanding on the underlying physics of the exotic quantum states emerging from ambient pressure materials. In this talk, I will report some new findings from our recent high-pressure studies, including the quantum phase transition from superconducting to insulating-like state [1] and the crossover from two-dimensional to three-dimensional superconducting states in the bismuth-based cuprate superconductor [2]; the observation of breakdown of both strange metal and superconducting states at a pressure-induced quantum critical point in iron-pnictide superconductors [3].

[1] Zhou and Sun et al, Nature Physics 18(2022)406

[2] Guo and Sun et al, Nature Physics 16(2020)295

[3] Cai and Sun et al, arXiv 2207.13272

### 【报告人简介】



Liling Sun is a Professor at Institute of Physics, Chinese Academy of Sciences. Her research is in experimental condensed matter physics, investigating strongly correlated electron systems and focusing primarily on revealing the mechanisms of unconventional superconductivity through the investigations by high pressure methods. She has published over 150 papers in scientific journals, including Nature, Nature Physics, Nature communications, PNAS, Reports on Progress in Physics, Physics Review Letters and Advanced Materials etc., and given over 60 invited talks. Professor Sun received National Award for Innovation, National Award for Science and Technology Progresses, the Hu Gang-Fu Award from Chinese Physical Society. She is a Fellow of the American Physical Society.

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