

「フロンティア機能性物質創製センター」 オープンセミナーのご案内

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「フロンティア機能性物質創製センター」では、オープンセミナーを開催しております。第23回は、物性理論研究者の Timothy Ziman (CNRS Director, ILL, France) にご講演をお願いしました。多くの方々のご来聴をお待ちしています。

兵庫県立大学「フロンティア機能性物質創製センター」
オープンセミナー(第23回)

講師 : Timothy Ziman

(ラウエ・ランジュヴァン研究所、フランス)

“Quantum Oscillations, Fermi Surface Reconstruction and Charge Density Waves in Cuprate Superconductors”

Magnetic quantum oscillations in high magnetic fields on high-temperature superconductors $\text{YBa}_2\text{Cu}_3\text{O}_{6+\delta}$ were shown some years ago [1] to include a prominent low-frequency peak with two smaller neighbouring peaks. The separation and even the position of these three peaks is almost independent of doping. This pattern has been explained previously by rather special, exquisitely detailed, Fermi-surface reconstruction coming from Charge Density Waves. These Charge Density Waves have been observed by X-ray diffraction in both low, and recently, in high fields, using free electron Lasers and pulsed magnetic fields[2]. We propose[3] that the magnetic oscillations are of different origin, and their frequencies are related to the bilayer and inter-bilayer electron hopping rather than directly to the areas of tiny Fermi-surface pockets. Such so-called "slow oscillations" explain more naturally many features of the observations and allow us to estimate the inter-layer transfer integrals and in-plane Fermi momentum.

[1]Suchitra E. Sebastian and Cyril Proust, *Annu. Rev. Condens. Matter Phys.* 6, 411 (2015) and references therein.

[2]H. Jang et al, *PNAS*, 113, 14645(2016); arXiv:1607.05359

[3]P. Grigoriev and T. Ziman arXiv:1606.03942

日時 : 2016年3月21日(火曜日)

14:30 ~ 15:30

場所 : 兵庫県立大学理学部

研究棟7階・談話室(739号室)