

SEMINARIUM Z MAGNETYZMU I NADPRZEWODNICTWA

Upzejmie zawiadamiamy, że w **środę**
29 listopada 2023 r., o godz.10:00

odbędzie się seminarium **on-line (link podany jest na stronie IF PAN)**,
na którym

dr Orest Pavlosiuk

*(Instytut Niskich Temperatur i Badań Strukturalnych
im Włodzimierza Trzebiatowskiego PAN)*

wyłosi referat na temat:

“Struktura elektronowa i oscylacje kwantowe w semimetalach Diraca drugiego rodzaju MoSi₂ i WSi₂,”

Thorough investigations of electronic structure are crucial for discovering new topological materials and understanding their electron transport properties. Here, we discuss the electronic structure of two disilicides, WSi₂ and MoSi₂, revealing type-II Dirac states and the Fermi surface topology of both materials [1]. An excellent agreement was found between the results obtained from first-principles calculations and the experimental results obtained from the analysis of quantum oscillation phenomena. Additionally, the analysis of Shubnikov-de Haas oscillations uncovered the occurrence of the Shoenberg effect and the spin-zero effect. We observed oscillations of magnetostriction in MoSi₂ and confirmed that they can be a comprehensive technique for mapping Fermi surfaces in semimetals. The magnetotransport properties of both disilicides can be understood in the scope of nearly perfect carrier compensation, and remarkably large anisotropic magnetoresistance can be elucidated by considering the anisotropic Fermi surface. The future directions of the research on WSi₂, MoSi₂ and isostructural materials is also discussed.

[1] O. Pavlosiuk, P. W. Swatek, J.-P. Wang, P. Wiśniewski and D. Kaczorowski, „Giant magnetoresistance, Fermi-surface topology, Shoenberg effect, and vanishing quantum oscillations in the type-II Dirac semimetal candidates MoSi₂ and WSi₂”, *Phys. Rev. B* **105**, 075141 (2022).

Wykład będzie wygłoszony w języku polskim.

Serdecznie zapraszamy

Roman Puźniak / Andrzej Szewczyk / Henryk Szymczak