



EINLADUNG zum IFP-SEMINAR

Chirality-induced selectivity and polarization in chiral materials

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Host: Ernst Bauer
Termin: Freitag, 1. März 2024, 11:00 Uhr
Ort: TU Wien, Freihausgebäude
Wiedner Hauptstraße 8-10, 1040 Wien
Seminarraum DC rot 07 (roter Bereich, 7. OG)

Abstract:

A role of chirality in materials is discussed, being inspired by recent studies on chirality-induced selectivity and polarization of spin angular momenta and angular momenta with chiral materials. We demonstrate that chiral materials exhibit a spin-polarized state when the charge current is injected into them [1-6]. Importantly, a robust protection of the spin polarization enables a nonlocal spin detection over micrometers or longer [7]. The influence of dynamical fluctuations, which are characteristic of chiral materials and known as chiral phonon [8], is also argued in terms of spin signal detection from chiral materials [9].

References

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- [2] Y. Nabei et al., APL 117, 052408 (2020).
- [3] K. Shiota et al., PRL 127, 126602 (2021), featured in Physics 14, s113.
- [4] H. Shishido et al., APL 119, 182403 (2021).
- [5] Y. Kousaka et al., JJAP 62, 015506 (2023).
- [6] H. Shishido et al., APL 119, 182403, 2021.
- [7] Y. Togawa et al., JPSJ 92, 081006 (2023), Special Topics DMI.
- [8] K. Ishito et al., Nat. Phys. 19, 35 (2023); Chirality 35, 338-345 (2023).
- [9] K. Ohe et al., PRL 132, 056302, 2024.