ID de Contribution: **41** Type: **Non spécifié**

Dissipative dynamics of an impurity in the presence of the spin-orbit coupling (ONLINE presentation)

jeudi 2 septembre 2021 15:00 (1 heure)

What happens when the impurity is immersed into a dissipative bath in the presence of spin-orbit coupling? This question is addressed in this talk.

To illustrate the main ideas, we first introduce a one dimensional toy model. Then, we employ a more elaborate Caldeira-Legett type coupled system. We show that the spin-orbit coupling and the presence of the dissipative medium might lead to a spin polarization in the system. We argue that our results are probably not directly applicable to classic solid state systems due to small spin-relaxation times. However, the obtained results can have important implications for electron dynamics in chiral molecules. In particular, the model can help to resolve certain features of the observed spin selectivity in chiral molecules (CISS effect) and of the mechanism of molecule-substrate interactions. As a specific example, we show how a chiral molecule can induce an in-gap Shiba state when placed on top of a s-wave superconductor, in agreement with recent experimental data.

Orateur: Dr GHAZARYAN, Areg (Institute of Science and Technology Austria)