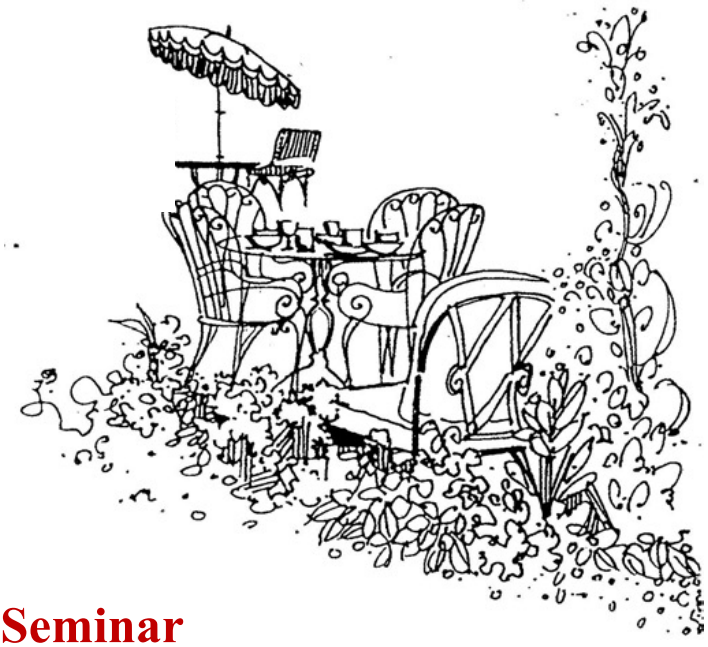
Chez Pierre

Presents ...

Monday, May 11, 2026

12:00 – 1:00 pm Duboc

Room – 4-331



Chez Pierre Seminar

Alex Levchenko, U Madison-Wisconsin

" Theories of superconducting diode effects".

Abstract: In this talk, I will review the mechanisms underlying supercurrent nonreciprocity and explore the general principles of the supercurrent diode effect. As an illustrative example, I will discuss in detail the model of a two-dimensional superconductor with Rashba-type spin-orbit coupling in the clean limit, subjected to an in-plane magnetic field, which realizes a helical superconducting phase.

This discussion will be extended to disordered systems, other forms of spin-orbit coupling, multiphase superconductors, and specific realizations of this physics in Josephson junction devices and interferometers.

Reference: arXiv:2510.25864 [cond-mat.supr-con]