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Friday, September 30, 11:00 am. Osborne A204

Unveiling new phenomena in dissipative magnetic systems

While magnetic systems have been extensively studied both from a fundamental physics perspective and as building blocks for a variety of applications, their topological properties, however, remain relatively unexplored due to their inherently dissipative nature. I will start this talk by discussing how the recent introduction of non-Hermitian topological classifications has opened up opportunities for engineering topological phases in magnetic systems, and I will present our first proposal of a non-Hermitian topological magnonic system, i.e., a realization of a SSH non-Hermitian model via a one-dimensional spin-torque oscillator array.

Further, I will show how magnetic exceptional points can unveil large-amplitude auto-oscillatory regimes in nano-oscillators. Finally, I will discuss the conditions under which magnetic insulating systems can host one of the most striking non-Hermitian phenomena with no Hermitian counterpart, i.e., the skin effect, which underlies the breakdown of the bulk-edge correspondence.

Short Bio

I have a BS from the university of Trieste and two masters, one from UPMC/ENS (Paris) in applied physics and one from EPFL (Lausanne) in theoretical physics. I did my PhD at Utrecht University with Rembert Duine (2013-2017), and I was a Rubicon postdoctoral Fellow in the group of Yaroslav Tserkovnyak in 2017-2018. Later, I worked as a postdoc at UT Austin in the group of Allan MacDonald (2018-2020). Since Fall 2020, I am an assistant professor at Boston College. I was recently awarded a NSF Career for my proposal on *Magnetic topological phases in dissipative systems*.