



IFMP Seminar

Date Monday, January 15, 2024, at 14:50

REC/C213

Speaker **Mikel Iraola**
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Title **Topological quantum chemistry description of interacting-electron systems**

Abstract The intense attention attracted by topological materials in the last decades has led to the development of efficient numerical methods and theoretical frameworks for diagnosing and classifying topology in actual materials. In particular, topological quantum chemistry (TQC) formalism describes the relationship between crystal symmetries and topology in all space groups, allowing for a systematic classification of topological phases in crystals. However, these techniques rely on the independent-electron approximation, and it remains unclear to what extent they can describe topology in interacting materials. Here, we explore the application of TQC to interacting-electron systems. First, we apply TQC to revisit the topology in SmB_6 , a prototype of a heavy-fermion insulator. Second, we report on the use of TQC on the single-particle Green's function as a method to classify interacting topological phases. The Hubbard diamond chain serves as a testbed for this classification.

Host: M. Rahn