University of Crete
Department of Physics

Physics Colloquium

Thursday, 15 April 2021 | 17:00 – 18:00, Online with BigBlueButton

Dynamic properties of the Kitaev model at finite temperatures

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ABSTRACT

Quantum Spin Liquids (QSLs) are intriguing states of matter, caused by frustrating magnetic interactions, where local magnetic moments fluctuate in a liquid fashion, instead of ordering, even at the lowest temperatures, in order to minimize their energy. The lack of long-range ordering in terms of local order parameters yields difficulties in the identification of QSL-phases of matter. However, QSLs are usually manifested by other properties like fractional excitations, emergent gauge fields, topological entanglement, and more. In this context, the Z2 quantum spin-liquid in Kitaev's model on the honeycomb lattice stands out, as many of its properties can be studied (almost) exactly. In addition, its topological properties have allowed for strong evidence of the existence of this exotic phase. Here, I will present results on the thermal transport of the Kitaev model in one- and two-dimensions as well as its coupling to lattice distortions.