

Transport phenomena in Bose-Einstein magnon condensates

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The field of magnonics is seen as a path to better information processing technology [1]. The basic idea is to use magnons, the quanta of spin waves, as information carriers. Magnonic Bose-Einstein condensates, with their unique properties, are of particular interest and could serve as a crucial entity. They can be generated at room temperature, enable wave-based computational applications such as quantum-classical qubit computation, and are spatially localized due to their zero group velocity. I will discuss the transport properties of magnon BECs via the excitation of magnon supercurrents [2, 3] and address the application potential.

[1] P. Pirro et al., Nat. Rev. Mater. 6, 1114 (2021).

[2] M. R. Schweizer et al., J. Appl. Phys. 132, 183908 (2022).

[3] D. A. Bozhko et al., Nat. Phys. 12, 1057 (2016).

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