

Weizmann Institute , Colloquium

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**Skyrmions, monopoles and emergent electromagnetic fields in
chiral magnets**

In chiral magnets lattices of topologically quantized magnetic whirls, so-called skyrmions, form due to the interplay of spin-orbit interactions and thermal fluctuations. Skyrmions couple extremely efficiently to electric currents by Berry phases described by emergent electrodynamic fields. Due to this coupling skyrmions can be controlled by tiny currents. We investigate how the topology of skyrmion phase can be changed by singular magnetic defects which can be identified as emergent magnetic monopoles.