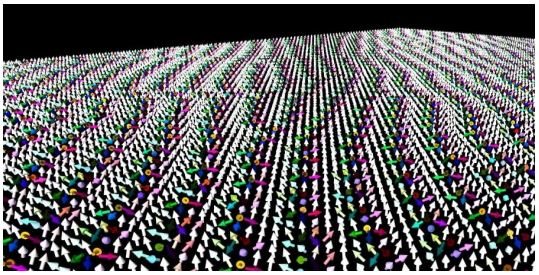

Contribution ID: **21** Type: **not specified**

Multiple skyrmions in bounded domains

Tuesday, 14 October 2025 17:15 (45 minutes)

In extremely thin ferromagnetic films, an additional interaction, the so-called Dzyaloshinskii-Moriya interaction (DMI), arises in the micromagnetic energy. In such materials, topoligically nontrivial, point-like configurations of the magnetization called magnetic skyrmions are observed, which are of great interest in the physics community due to possible applications in high-density data storage.
We will discuss our results regarding existence of higher degree minimizers on bounded domains. By inserting tiny skyrmions in carefully chosen locations, we prove that on sufficiently large domains doing so increases the energy by strictly less than the energy of an infinitesimal bubble. In turn, this will imply continuity of the degree along minimizing sequences.

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