How to find the energetically most favorable chiral skyrmion with a given topological charge?

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Chiral magnetic skyrmion with unit topological charge Q have been comprehensively studied within last decades. Recently it was shown [1] that the basic model [2] of the chiral magnet with Heisenberg exchange and Dzyaloshinskii-Moriya interactions allows stable static skyrmions having $|Q| > 1$. Although such sophisticated magnetic textures (see FIG), known as skyrmionic sacks or skyrmion bags, have not been reported experimentally so far, they are known to have larger-scale non-magnetic twins which experimentally discovered in liquid crystals [3].
We will discuss some interesting phenomena discovered when trying to answer the inevitable question: are skyrmion bags the lowest energy solutions for a given value of the topological charge?

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[2] A.N. Bogdanov and D.A. Yablonskii, Sov. Phys. JETP **68**, 101 (1989).
[3] D. Foster *et al.*, Nat. Phys. **15**, 655 (2019).

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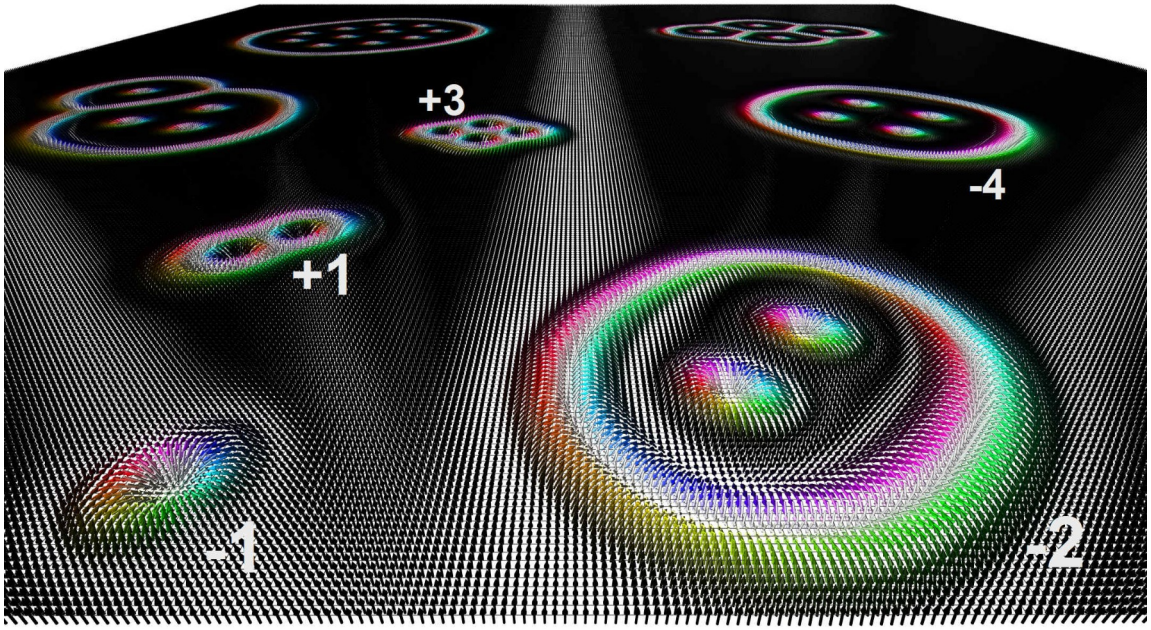

FIG: Examples of chiral magnetic skyrmions with various topological charges.