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【642】 Thermally superactive artificial kagome spin ice structures

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Artificial spin ices are lithographically defined arrangements of dipolar-coupled nanomagnets, which are engineered to mimic various phenomena occurring in complex materials or theoretical models. An open challenge is the direct imaging of the low temperature phases in artificial kagome spin ice. Due to the high frustration associated with the kagome lattice, the moments freeze before the low temperature phases can be reached. Here, I will demonstrate strategies to tailor the energy barriers of magnetic reversal by optimizing the magnetic materials. The strategies rely on exploiting the Dzyaloshinskii-Moriya interaction and introducing out-of-plane uniaxial anisotropy in magnetic multilayers, effectively reducing the energy barrier.

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