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## **【813】 Probe magnetism in an ultrafast transmission electron microscope: skyrmion creation by optical pulses in FeGe**

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Magnetic skyrmions are topologically non-trivial nano-scale spin textures having raised great interest not only for their unique physical behaviors, but also for the potential applications in spintronics. In thin crystals of helical magnets, the skyrmion phase coexists with the topologically trivial helical and field-polarized phases over large portions of the phase diagram.

Here we use an ultrafast TEM in Lorentz-Fresnel imaging mode to report the creation of skyrmions by a single optical pulse in a 50 nm-thick crystal of the helical magnet FeGe. We show that it is possible to create stable skyrmions in a wide region of the phase diagram. Possible mechanisms responsible for skyrmion formation will be discussed.

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