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Laser ARPES on Fe_3Sn_2 : Untangling twin domains and discovery of unconventional quasiparticle

Kagome materials have attracted many interests recently as they may host topological bands, flat bands, superconductivity, unconventional magnetic properties, etc. In this poster, we present our work on one example of magnetic Weyl kagome semimetal called Fe_3Sn_2 by using laser micro-ARPES. With a small spatial resolution of a few microns of the laser, we show that the breathing kagome pattern in Fe_3Sn_2 manifest itself in twin domains that are otherwise unresolved in conventional synchrotron based ARPES experiment. From these untangled twinned areas, we analysed the electron pockets at the zone center and discover the band characteristic follows the marginal Fermi liquid hypothesis indicating a break from a Fermi liquid picture.