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Mapping the Spin texture of topological insulators

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The helical spin texture of surface electrons in topological insulators has attracted a great deal of interest in the past few years. In this talk I will present new results obtained by using an innovative ultra-high efficiency spin-resolved photoemission spectrometer to map the spin texture of Bi_2Se_3 topological insulator throughout the entire momentum space. We discover a surprising property of these surface electrons, e.g. that the spin polarization of the resulting photoelectrons can be fully manipulated by light in three dimensions. The evolution of spin texture as a function of the light polarization is also studied.