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Surface state photoelectrons in topological insulators and Weyl semimetals

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We compute the photoemission intensity and polarization for the surface states electrons in topological insulators and Weyl semimetals. The number of emitted photoelectrons is sensitive to the intensity of the laser intensity, whereas the polarization of the photoelectrons is sensitive to the chirality and topology of the surface electrons. We investigate the effect of the Zeeman field and warping.

For the Weyl materials we demonstrate the existence of the Fermi arcs which connect the opposite Weyl nodes.

In the presence of a magnetic field the effect of the EB field gives rise to the chiral anomaly which is observed as a change of the chemical potential, resulting in an enhancement of the intensity in the vicinity of one of the Weyl nodes.

Biography:

David Schmeltzer has completed his PhD at the age of 27 years at the Technion –Israel Institute of Technology in Haifa and postdoctoral studies at the Los-Alamos National Laboratory in New Mexico and Max Planck Institute in Stuttgart Germany. Presently he is a full Professor of Theoretical Condensed Matter Physics at City College. He has published more than 120 papers in prestigious journals.