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Weyl semimetals A S -matrix study

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We study a model for Weyl semimetals using the scattering matrix formalism. We take in account boundary condition. Due to the boundary, the self adjoint condition needs to be checked in order to insure physical solutions. Using the principle of minimal coupling, we identify the electron-photon Hamiltonian. The photoemission intensity is computed using the S-matrix formalism. The S-matrix is derived using an incoming photon state, and outgoing state of a photoelectron and a hole in the valence band. The photoemission reveals the valence band dispersion $\epsilon=\pm v k_{y}$ and $^{''}$Fermi arcs $^{''}$. We construct the scattering matrix due to the chiral anomaly and obtain the crossed section for the photon intensity. In the presence of phonon we obtain the scattering matrix for chiral phonons allowing to investigate the Raman scattering.

Biography

D Schmeltzer has completed his PhD from TECNION ISRAEL INSTITUTE of TECHNOLOGY HAIFA, IRAEL. He has published more than 120 papers in reputed journals and has been serving as an editorial board member. Hi is completed his B.Sc., in Hebrew University and M.Sc. in Technion, D.Sc. Now he is working a Professor of Theoretical Condensed Matter Physics in the City University of New York, New York, USA.

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