

# THEORIEKOLLOQUIUM

Freitag, den 14.07.17 um 12:00 in MC 351

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## Theoretical description of ARPES on the basis of the one-step model

Various technical developments enlarged the potential of angle-resolved photo-emission (ARPES) tremendously during the last one or two decades. In particular improved momentum, energy and spin resolution as well as the use of photon energies from few eV up to several keV makes ARPES a rather unique tool to investigate the electronic properties of solids and surfaces. These experimental developments need to be closely followed by corresponding theoretical description beyond simple interpretations like e.g. spectral function or DOS. Here, we present a generalization of the state of the art description of the photoemission process, the so called one-step model that describes excitation, transport to the surface and escape into the vacuum in a coherent way. Within this approach we account for correlation effects by LSDA+DMFT, disorder by means of CPA. In this presentation, I will concentrate on the spin polarised surface states as probed by the ARPES such as topological surface states in  $\text{Bi}_2\text{Se}_3$  and  $\text{Bi}_2\text{Te}_3$ , giant Rashba splitted bulk states in GeTe and their manipulation by using pump-probe spin resolved ARPES.

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