

# XPS Limit In Soft X-Ray Photoemission Spectroscopy on Ag(001): Experiment vs Theory

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**Abstract.** Angle-Resolved Photoemission Spectroscopy (ARPES) is the method of choice for characterising the electronic structure of a given material. Within the Ultra-Violet (UV) regime, theory can nicely reproduce experimental spectra using the k-conserving dipole selection rules within the one-step model of photoemission [1,2]. Yet, this model is no longer sufficient when dealing with the soft/hard X-ray or high temperature regimes. Within this XPS limit, one has phonon-assisted electronic transitions such that the dipole selection rules cannot describe by themselves the experimentally obtained spectra [3]. Here we use a so-called alloy analogy model in order to quantify the importance of non-dipole transitions. This new model is here tested on new experimental data obtained for the Ag(100) system.

## REFERENCES

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