Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Modeling of LMM-MVV Auger-Auger Coincidence Spectra From Solids R. SUNDARAMOORTHY, A.H. WEISS, University of Texas at Arlington, S.L. HULBERT, Brookhaven National Laboratory, R.A. BARTYNSKI, Rutgers University — Atoms that are highly excited due to the presence of a hole in an inner shell often relax via an Auger transition. This auto-ionizing process results in a final state with two or more holes from an Auger cascade. We present results of the direct measurements of the second and third Auger decays in this sequence. We have measured the Mn MVV Auger spectra from a single-crystal sample of MnO in time coincidence with Auger electrons emitted from prior Mn LMM Auger decays and find these to be much wider than the MVV spectrum measured in time coincidence with M core photoelectron emission. We present a model which attributes the increased energy width of the MVV transitions that follow LMM decays to the rearrangement of "not so innocent" bystander hole(s) in the valence band. The energetics of the Auger cascade process are modeled mathematically in terms of correlation integral(s) and convolution integral(s) over the valence band density of states. Comparisons with recent Auger-Auger coincidence studies of Ag and Pd will be made. Acknowledgements: Welch Foundation, NSF DMR98-12628, NSF DMR98-01681, and DOE DE-AC02-98CH10886.

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Date submitted: 04 Dec 2005 Electronic form version 1.4