

Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Auger Decay Studies of Core-Excited HBr by Angle-resolved Photoelectron Spectroscopy XIMAO FENG, ANTHONY WILLS, Department of Physics, Western Michigan University, Kalamazoo, MI 49008, USA, EMMA SOKELL, Department of Experimental Physics, University College Dublin, Republic of Ireland, MARCO WIEDENHOEFT, NORA BERRAH, Department of Physics, Western Michigan University, Kalamazoo, MI 49008, USA — Angle-resolved, two-dimensional photoelectron spectra of HBr, covering the Br $3d \rightarrow \sigma^*$ resonances, $3d \rightarrow nl\lambda$ Rydberg resonances and the $3d \rightarrow \varepsilon l$ continuum, have been measured. The two $3d_{5/2,3/2} \rightarrow \sigma^*$ resonances are separated for the first time and are found to be around 70.84 and 71.87 eV, respectively. The atomic Auger lines are measured and their angular distribution parameters β calculated. Their intrinsic anisotropy parameters α_2 are found similar to those of the corresponding normal Auger decay lines in the isoelectronic counterpart Kr. Resonant enhancements on the valence photolines from all the $3d$ resonances have been observed and found to have different effects on the angular distribution parameters β of the photolines. The potential energy curves of the σ^* state and the related dissociative molecular states are quantitatively predicted.

Ximao Feng
Department of Physics, Western Michigan University
Kalamazoo, MI 49008, USA

Date submitted: 26 Jan 2005

Electronic form version 1.4