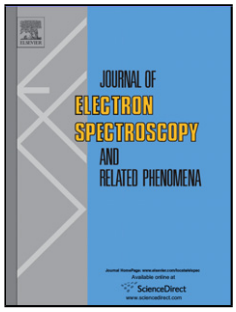

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PII: S0368-2048(14)00223-0
DOI: http://dx.doi.org/doi:10.1016/j.elspec.2014.10.003
Reference: ELSPEC 46353

To appear in: *Journal of Electron Spectroscopy and Related Phenomena*

Received date: 3-7-2014
Revised date: 30-9-2014
Accepted date: 1-10-2014

Please cite this article as: G. Bian, T. Miller, T.-C. Chiang, Rashba Splitting and Dichroism of Surface States in Bi/Ag Surface Alloy, *Journal of Electron Spectroscopy and Related Phenomena* (2014), http://dx.doi.org/10.1016/j.elspec.2014.10.003

Rashba Splitting and Dichroism of Surface States in Bi/Ag Surface Alloy

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Abstract

The Rashba effect plays an important role in various spin-related phenomena in two-dimensional electronic systems. In this work we present a theoretical analysis of the Rashba effect both analytically and numerically for the prototypical Rashba system Bi/Ag surface alloy, which shows a giant Rashba spin splitting. The results reveal the critical influence of atomic spin-orbit coupling and structural inversion asymmetry. In addition, we demonstrate a theoretical route to interpret the prominent circular dichroic patterns observed by angle-resolved photoemission spectroscopy in this system. The results reveal a close connection between the experimentally observed dichroic patterns and the Rashba spin texture.

Keywords: Rashba effect, Bi/Ag surface alloy, ARPES, circular dichroism

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