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# 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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