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Anisotropic mass enhancement factors of $\bar{\Gamma}$ state on Be(0001) surface TEYU CHIEN, University of Tennessee, Knoxville, EMILE RIENKS, MARIA JENSEN, Institute for Storage Ring Facilities and Interdisciplinary Nanoscience Center (iNANO), University of Aarhus, Denmark, ASIER EIGUREN, EUGENE CHULKOV, Donostia International Physics Center (DIPC), 20018 San Sebastiàn/Donostia, Spain, PHILIP HOFMANN, Institute for Storage Ring Facilities and Interdisciplinary Nanoscience Center (iNANO), University of Aarhus, Denmark, WARD PLUMMER, University of Tennessee, Knoxville — It is controversial on the values of mass enhancement factors, λ, of Be(0001) $\bar{\Gamma}$ state. Three possible explanations are: (1) λ is anisotropic along the Fermi circle; (2) method-based difference for extracting λ; (3) failure of theoretical model for capturing EPC features. We demonstrate a systematically survey of λ along the Fermi circle of Be(0001) $\bar{\Gamma}$ state. By adopting different methods to extract λ, the possibility of method-based inconsistency was ruled out. The trend of the anisotropic λ is clear and is confirmed by theoretical calculations, though the values are inconsistent with experiment. With model data simulation, we are confident about the extracted λ while we have noisy data. The possible explanation is that the DFT-LDA calculation can not catch the features of EPC on Be(0001) $\bar{\Gamma}$ state correctly. This work is financially supported by National Science Foundation (grants NSF-DMR-0451163).

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