

Abstract Submitted
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Superconducting gap anisotropy in LuNi₂B₂C by point-contact spectroscopy¹ XIN LU, WAN KYU PARK, LAURA H. GREENE, University of Illinois at Urbana-Champaign, JUNG-DAE KIM, SUNMOG YEO, SUNG-IK LEE, Pohang University of Science and Technology, Korea — The superconducting gap anisotropy in non-magnetic members of the intermetallic borocarbide family still remains controversial. Several scenarios have been proposed including the s+g pairing symmetry and multi-band/multi-gap superconductivity. In order to address this issue, especially the puzzling existence of point nodes along *a*- and *b*-axis, we apply the point-contact spectroscopy technique to investigate the superconducting gap structure of single crystals LuNi₂B₂C ($T_c \sim 16.5$ K) along three different crystallographic orientations. *ab*-plane surfaces are prepared by embedding and polishing crystals and their orientations are confirmed by X-ray diffraction. Our preliminary conductance data, analyzed by the one-band Blonder-Tinkham-Klapwijk model, show anisotropic gap values, ~ 1.6 meV and ~ 2.6 meV, along (001) and (110) directions, respectively. We will discuss the possible origin for the gap anisotropy.

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