**Impurity effects on the ultranodal superconductor candidate FeSe1-*x*S*x***
**(Session number 2, Oral)**

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Tetragonal FeSe1-*x*S*x* is a prime candidate for a novel superconducting state called an “ultranodal” state having Bogoliubov Fermi surfaces (BFSs) that are two-dimensional gap nodes in the momentum space [1]. This ultranodal state lies beyond the usual classification of gap structures, which include fully gapped, point-nodal, and line-nodal states. In this study, the effects of impurities on the superconducting state of tetragonal FeSe1-*x*S*x* are investigated using high-precision magnetic penetration depth measurements combined with systematic control of the point defect density introduced by high-energy electron irradiation [2]. We found that the temperature dependence of the penetration depth in the pristine sample is consistent with the ultranodal state model. As the point defects are introduced, the temperature dependence changes nonmonotonically, and a highly irradiated sample exhibits a fully gapped behavior, indicating that the gap nodes are lifted by the disorder. Our results highlight unusual impurity effects on BFSs, which suggest the accidental nature of the nodes in FeSe1-*x*S*x*, leading to the disorder-induced lifting of BFSs.

[1] C. Setty *et al*., Nat. Commun. **11**, 523 (2020).; K. Matsuura *et al*., Proc. Natl. Acad. Sci. USA **120**, e2208276120 (2023).

[2] T. Nagashima, K. Ishihara, K. Imamura, M. Kobayashi, M. Roppongi, K. Matsuura, Y. Mizukami, R. Grasset, M. Konczykowski, K. Hashimoto, and T. Shibauchi, Phys. Rev. Lett. **133**, 156506 (2024).