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Anisotropic electron-phonon coupling in the spinel oxide superconductor GE HE, YANLI JIA, XINGYUAN HOU, ZHONGXU WEI, HAIDONG XIE, ZHENZHONG YANG, JINAN SHI, JIE YUAN, LEI SHAN, BEIYI ZHU, HONG LI, LIN GU, Chinese Academy of Sciences (CAS), KAI LIU, Renmin University of China, TAO XIANG, KUI JIN, Chinese Academy of Sciences (CAS), BEIJING NATIONAL LABORATORY FOR CONDENSED MATTER PHYSICS, INSTITUTE OF PHYSICS, CHINESE ACADEMY OF S TEAM, BEIJING KEY LABORATORY OF OPTO-ELECTRONIC FUNCTIONAL MATERIALS & MICRO-NANO DEVICES, DEPT OF PHYS COLLABORATION, COLLABORATIVE INNOVATION CENTER OF QUANTUM MATTER COLLABORATION, SCHOOL OF PHYSICAL SCIENCES, UNIVERSITY OF CHINESE ACADEMY OF SCIENCES COLLABORATION — Anisotropic electron-phonon coupling has been widely observed in various quasi-two dimensional superconductors like perovskite copper oxides, $2H-NbSe_2$ and MgB_2 , which exhibit unexpected critical superconducting transition temperature (T_c). Hitherto, $LiTi_2O_4$ with a remarkable T_c up to 13 K is the only known oxide superconductor in spinels, the origin of which remains obscured mainly due to the lack of high-quality single crystals. By probing tunneling spectra of single crystalline thin films in different orientations, an intrinsic anisotropic electron-phonon coupling is firstly observed in such a cubic system as well, thereby giving insight to the issue of key ingredients in understanding the novel superconducting systems.

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