

Abstract Submitted
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Mixed pairing symmetry in κ -(BEDT-TTF)₂X organic superconductors from ultrasonic velocity measurements MARIO POIRIER, MAXIME DION, DAVID FOURNIER¹, ANDRE-MARIE S. TREMBLAY, KIM D. TRUONG, Universite de Sherbrooke — Discontinuities in elastic constants are detected at the superconducting transition of layered organic conductors κ -(BEDT-TTF)₂X by longitudinal and transverse ultrasonic velocity measurements. Symmetry arguments show that discontinuities in shear elastic constants can be explained in the orthorhombic compound only if the superconducting order parameter has a mixed character that can be of two types, either $A_{1g}+B_{1g}$ or $B_{2g}+B_{3g}$ in the classification of irreducible representations of the orthorhombic point group D_{2h} . Consistency with other measurements suggests that the $A_{1g}+B_{1g}$ ($d_{xy}+d_{z(x+y)}$) possibility is realized. Such clear symmetry-imposed signatures of mixed order parameters have not been observed in other superconducting compounds.

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