

The elastic effects of a Lifshitz transition studied in Sr₂RuO₄

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I will describe two recent experiments studying the coupling between elastic and electronic degrees of freedom in Sr₂RuO₄ as it is tuned across a Lifshitz transition by the application of uniaxial pressure. In the first, we employ a new experimental technique, the ac elastocaloric effect, to deduce the entropy as a function of temperature and pressure across its phase diagram. In the second, we study its stress-strain relationship, and observe a strong softening of its Young's modulus at the Lifshitz transition. We show that, counterintuitively, this large effect is due entirely to the conduction electrons in the material's γ band.