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【164】 Development of a resonant ultrasound setup to explore quantum materials

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Resonant ultrasound (RUS) probes the resonant frequencies of a solid to determine the complete elastic tensor. RUS is sensitive to detect both the symmetry variation and coupling of other degrees of freedoms to the lattice. Notably, novel electronic ground states may be detected due to their symmetry breaking order parameters resulting in a change of resonant frequencies. Similarly, the coupling of the lattice to spin or charge degrees of freedom may be uncovered by changes in the sound wave attenuation or velocity. Here we will present our development of a resonant ultrasound setup for measurements at low temperature and at magnetic fields optimized to study of quantum matter.

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