

Abstract Submitted
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Indication of an internal field along the basal plane below the hidden order temperature in URu₂Si₂ from ²⁹Si-NMR in a random powder sample¹ EDITH SOTO², OSCAR BERNAL, Department of Physics and Astronomy, California State University, Los Angeles, CA 90032 — We present a study of the lineshape of ²⁹Si NMR spectra in hidden-order URu₂Si₂ for relatively low applied fields (1 and 2 T) and temperatures from 5 to 300 K. The random-powder pattern we obtained changes considerably at the transition temperature (17.5 K). Fitting the spectra to a powder pattern of axial symmetry (for which one can define the parameters: h_{\parallel} and h_{\perp} to locate the position of the spectral feature that corresponds to the orientation of the applied field parallel and perpendicular to the c -axis respectively) allows us to address the question of whether changes on the parameters imply an internal field throughout the sample. From these data we have been able to conclude that there is indeed a shift in the position of the line in the perpendicular geometry. The change in frequency units is between 3 and 4 kHz, which correspond to a field of about 4 G, just as we found previously for a single crystal. This is not the case for the parallel geometry, for which the strong T dependence of the paramagnetic broadening and shift precludes us from making a similar conclusion.

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