

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

High resolution ^{11}B NMR of MgB_2 using cryogenic magic-angle spinning¹ RAIVO STERN, National Institute of Chemical Physics and Biophysics, Tallinn 12618, Estonia, PETER BECKETT, MARK S. DENNING, School of Chemistry, University of Southampton, Southampton SO17 1BJ, UK, IVO HEINMAA, MUKESH C. DIMRI, National Institute of Chemical Physics and Biophysics, Tallinn 12618, Estonia, EDWARD A. YOUNG, Institute of Cryogenics, School of Engineering Sciences, University of Southampton, Southampton SO17 1BJ, UK, MARINA CARRAVETTA, School of Chemistry, University of Southampton, Southampton SO17 1BJ, UK — Static and magic-angle spinning (MAS) ^{11}B NMR data at 4.7 T and 8.5 T have been obtained under cryogenic conditions on a diluted sample of magnesium diboride powder in the normal and superconducting state. We demonstrate that MAS NMR is possible on type-II superconductors despite the sample rotation. The data provide accurate information on the magnetic shift variation and longitudinal relaxation data down to a temperature of 8 K, with a resolution improvement over the entire temperature range. The onset of superconductivity is unaffected by the sample rotation, as revealed by a steep variation of the magnetic shift just below the critical temperature.

¹Appeared in JCP 137, 114201, <http://dx.doi.org/10.1063/1.4751476>

Raivo Stern
National Institute of Chemical Physics and Biophysics,
Tallinn 12618, Estonia

Date submitted: 19 Nov 2012

Electronic form version 1.4