# NMR study of the interplay between magnetic order and superconductivity in $YBa_2Cu_3O_{6.45}$

**T. Wu**[a], M-.H. Julien[a], H. Mayaffre[a], S. Krämer[a], M. Horvatić[a], C. Berthier[a], C.T. Lin[b], V. Hinkov[b], D. Haug[b], T. Loew[b], and B. Keimer[b]

[a]Laboratoire National des Champs Magnétiques Intenses, UPR 3228, CNRS-UJF-UPS-INSA, 38042 Grenoble, France
[b]Max-Planck-Institut für Festkorperförschung, Heisenbergstrasse 1, D-70569 Stuttgart, Germany

Cu NMR measurements were performed up to 28.5 Tesla in an untwined $YBa_2Cu_3O_{6.45}$ single crystal for which an electronic liquid crystal state was recently reported[1]. Although the sample is superconducting at $T_C = 35$ K, field-dependent magnetic order is found at low temperatures, in agreement with previous works[2]. Comparison of the results with data from other probes in $YBa_2Cu_3O_{6.45}$ and with NMR data in underdoped LSCO and YBCO reveals important aspects of the interplay between magnetic order and high temperature superconductivity.

[1]V. Hinkov et al., Science **319**, 597(2008).
[2]D. Haug et al., Phys. Rev. Lett. **103**, 017001(2009).