
CryoMAS NMR - an efficient research tool for correlated electronic systems

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We have developed a magic angle spinning (MAS) technique which allows recording of high resolution MAS-NMR spectra in a wide temperature region ($10\text{K} < T < 300\text{K}$) including cryogenic temperatures. Reasonably high sample spinning speeds (50 kHz at 300 K and 20 kHz at 20 K) make the technique suitable to study temperature dependencies and small structural changes in correlated electronic systems. We will present the description of the CryoMAS probe and the results of studies on various structural changes and phase transitions in magnetic systems such as $\text{Na}_5\text{RbCu}_4(\text{AsO}_4)_4\text{Cl}_2$, in $\text{Sr}_2\text{Cu}(\text{BO}_3)_2$ and spin-Peierls compound TiPO_4 ; and on the temperature dependence of the Knight shift in superconducting MgB_2 .