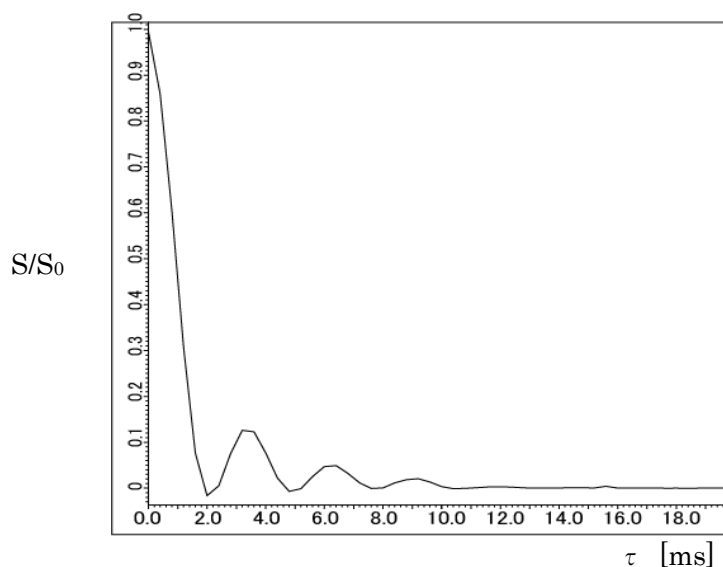


Accurate measurements of internuclear distances in solid-state NMR

- REDOR (Rotational Echo DOble Resonance) -

REDOR is a solid-state NMR technique for retrieving heteronuclear dipolar interactions decoupled by magic-angle spinning and determining internuclear distances from thus recoupled dipolar interactions. REDOR is widely used for structural analysis of proteins in solids since the distances can be determined with 0.1 Å accuracy without single crystals, although samples should usually be enriched.

JNM-ECA series support REDOR measurements, and the result using ECA and 4mm HXY probe is shown below.



For 2- ^{13}C , ^{15}N -labeled glycine ($\text{H}_2^{15}\text{N}-^{13}\text{CH}_2-\text{COOH}$), the distance between ^{13}C and ^{15}N nuclei was determined using JNM-ECA930. The resultant dipolar coupling was 793 Hz, and the distance was evaluated to be 1.58 Å. This result agrees with 1.48 Å deduced in X-ray analysis, demonstrating the effectiveness of the solid-state NMR measurement.