



NUCLEAR MAGNETIC RESONANCE SPECTROMETER



In addition to routine spectroscopic studies on a number of NMR active nuclei, our Bruker Avance III 500 MHz Nuclear Magnetic Resonance (NMR) Spectrometer instrument is capable of both micro imaging and studies of translational motion in liquids and hydrogels. Such studies are facilitated through the provision of pulsed field gradient hardware that allows precise and independent control of magnetic field gradient pulses. Gradient pulses of up to 300 G/cm in the x, y axis and up to 1800 G/cm in the z axis are possible allowing the determination of diffusion constants as low as 10^{-12} m²/s or an imaging resolution of 20 μ m .

FEATURES

- 5mm high resolution spectroscopy probe with integrated lock coil.
- 5 and 10 mm Diff 30 probe with magnetic field gradients up to 1800 G/cm.
- 10 mm micro imaging probe,
- Imaging field gradients up to 300 G/cm allowing us to achieve a resolution of 20 μ m.

SPECIFICATIONS

- 500 MHz field strength
- Magnetic field gradients up to 1800 Gs/cm (diffusion) and 300 Gs/cm (imaging).

APPLICATIONS

- Life Science
 - 1D and 2D NMR Spectroscopy
- Materials Science
 - Studies of slow translational motion in liquids and gels
 - Micro-imaging

CASE STUDY

Our research interests lie with the use of NMR diffusometry to study anomalous diffusion in hydrogel networks and blood clots. The NMR instrument allows us to quantify the fractal characteristics of these systems in their native hydrated state.

