



High magnetic fields up to 900 MHz

Measures lowest diffusion coefficients to 10^{-15}

Highest Gradient Strengths – **Pulsed Gradients of 3320 G/cm or 1380 G/cm** (See the table below)

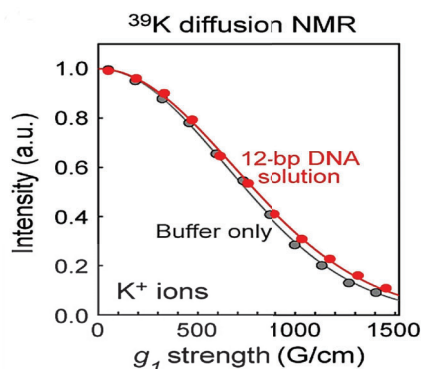
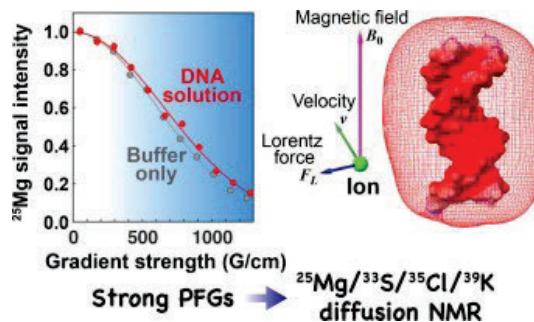
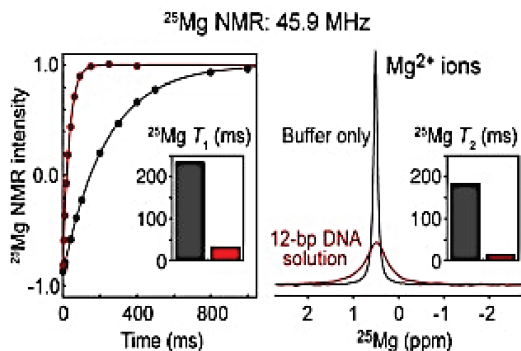
Exceptional Gradient Uniformity ($\sim 1\%$) over a large sample volume

Many Tuning Options: H/X/Lock, H/F/X/Lock, H/C/N/Lock, H-F/X/Lock

H/X, Direct or indirect detect

Optimized for minimal eddy currents

Strong PFGs (1500 G/cm) and high magnetic field (17.6 T) enable diffusion measurements of K^+ , Mg^{2+} , Cl^- , and SO_4^{2-} ions in biomolecular solutions despite rapid NMR relaxation and small gyromagnetic ratios (γ) of ^{33}K , ^{25}Mg , ^{35}Cl , and ^{33}S nuclei. *Tianzhi, Doty et al., JMR Vol 326, July 2025. doi:10.1016/j.jmr2025.10780*



These experiments were enabled by the unique high field gradient strength of the Doty probes.

Parameter	Model 16-38 Z gradient	Model 20-40 Z gradient	Units
Outside diameter	38	39	mm
RF shield diameter	16	20	mm
Clear I.D.	14	17.5	mm
Cooling method	Water*	Water*	-
Continuous gradient	341	180	G/cm
Pulsed gradient	3320	1380	G/cm
Duty cycle	1.1%	1.7%	-
Gradient gain, α	45	18	G/cm/A
Continuous current	7.5	10	A
Peak current	73	77	A
Di x Zi, 4% local deviation	6x11	12x28	mm
Active sample volume, 5mm tube	200	500	μ L
Max XVT sample Temp	-100/+140	-140/+300	$^{\circ}C$

*Air cooling may be used, with a 50% reduction in current for a given duty cycle.