

CUSTOM HIGH FIELD CRYOGEN-FREE EPR MAGNETS

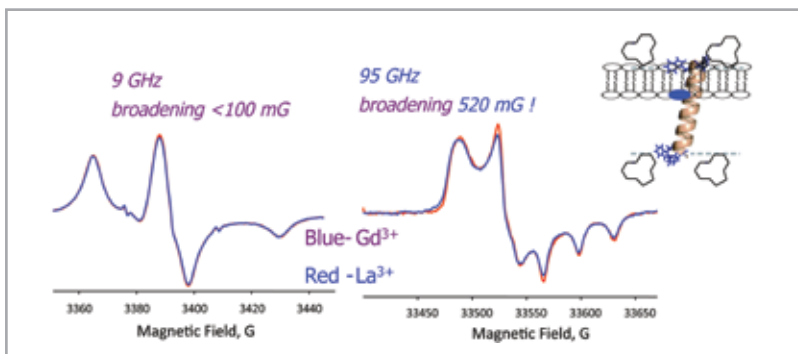
- Cryogen-free magnets generating fields up to 14 T
- Magnetic field along or transverse to vertical bore
- Superconducting sweep coils
- Variable temperature inserts integrated into cryostat
- Optical access to sample region
- Custom magnets tailored to special sample requirements



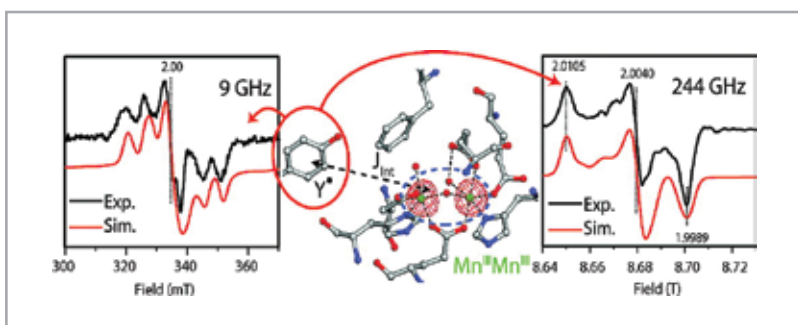
High performance W-band microwave bridge installed above 12 T cryogen-free magnet (courtesy Dr. A. Smirnov, North Carolina State University)



12 T cryogen-free magnet for EPR



Intensity-normalized experimental EPR spectra from 6-WALP in DMPC/DMPE-DTPA bilayer in the presence of Gd^{3+} ions (blue) and in the presence of La^{3+} (red) ions. LEFT at 9 GHz and RIGHT at 95 GHz (courtesy Dr. A. Smirnov, North Carolina State University)



EPR spectra at 9 GHz and 244 GHz of tyrosyl radical in R2F subunit of Ribonucleotide Reductase of *Corynebacterium ammoniagenes* together with a representation of the crystal structure around the Mn(III)-Mn(III) dimer (courtesy of Dr. E. J. Reijerse and Prof. W. Lubitz, Max Planck Institute for Bioinorganic Chemistry, Muelheim; reproduced from *J. Am. Chem. Soc.* (2010) 132, 11197-11213)



Cryogen-free 7T split pair for EPR with integrated variable temperature insert being installed in Kochi, Japan

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Technical Specifications

Product	CF 7 T split pair	CF 12 T solenoid
Field strength	7 T	12 T
Homogeneity (*)	< 10 ppm	< 10 ppm
Shimming	As required	As required
Drift	0.1 ppm/hr	0.1 ppm/hr
Room Temperature bore	45 mm	45 mm
Field sweep (#)	-7 to +7 T	-12 to +12 T
Cryocooler	1.5 W pulse tube	1.5 W pulse tube
Compressor	Water cooled, three phase	Water cooled, three phase
Cooldown time	36 hours	48 hours

(*) Homogeneity measured by plotting field over 1 cm long x 1 cm diameter cylinder

(#) Homogeneity of 10 ppm maintained over entire sweep range. Assumes a high resolution 20 bit magnet power supply (optional extra).

Key Benefits of Cryogen-Free Technology

- No cryogenic experience required
- Turn-key operation
- Overnight cool-down
- Low cost of ownership
- Minimal maintenance
- Minimal quench hazards

Leaving you to focus on the science

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