



Bruker BioSpin Corp.

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FOR IMMEDIATE RELEASE

## Bruker BioSpin Announces the World's First Commercial Solid-State DNP-NMR Spectrometer

CHICAGO, Illinois -- March 9, 2009 – At Pittcon 2009, Bruker BioSpin announces its new 263 GHz Avance Solid-State DNP-NMR spectrometer, the world's first commercially available solid-state NMR system that takes advantage of the inherent dramatic sensitivity enhancements enabled by the Dynamic Nuclear Polarization (DNP) technique. The system consists of an *Avance*™ *III* NMR spectrometer, configured for solid-state NMR, combined with a high-power gyrotron microwave source and specialized low-temperature DNP/NMR probe in an easy to use, integrated and industrialized package.

Solid State DNP-NMR has been pioneered and championed by Professor Robert Griffin and Dr. Rick Temkin at MIT, with the aim of providing a mechanism to greatly enhance the NMR sensitivity of solid materials. By transferring the magnetization from electron spins to the nuclear spins, signal enhancement factors of ~50x, and up to 150x, can be achieved. This enables researchers to study samples that otherwise would have been inaccessible to NMR, such as for instance certain membrane proteins or samples which are available only in very limited amounts or dilute concentrations.



The signal enhancement is achieved by delivering high-power microwave irradiation (263 GHz) to the electron spins, generated by Bruker's new, robust and easy-to-use gyrotron system. The NMR samples are typically spun at the magic angle at a temperature of about 100 Kelvin using Bruker's novel low-temperature MAS probe and the NMR experiments are performed with an *Avance III* 400 WB system.

"The availability of a turn-key DNP-NMR system removes the barrier for researchers to explore the exciting new possibilities offered by the incredible potential increase in signal-to-noise from DNP," commented Dr. Werner Maas, Executive Vice President of Bruker BioSpin. "This novel and unique commercial DNP-NMR system greatly expands the range of applications in solid-state NMR."

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“Bruker’s DNP-NMR system opens up new possibilities for research in the fields of biological solids and nano-materials,” added Professor Robert Griffin, Director of MIT’s Francis Bitter Magnet Lab. “Our own DNP applications to large scale proteins have revealed information previously inaccessible by NMR or any other analytical technique.”

**For Further Information:**

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