

Bruker Advances NMR Magnet Portfolio, Innovates in Industrial Solutions

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Advancements in NMR enable deeper insights into life science, drug discovery, and cleantech

ASILOMAR, Calif.--(BUSINESS WIRE)-- At the **Experimental Nuclear Magnetic Resonance** Conference (ENC 2023), **Bruker** announces innovations for NMR spectroscopy in life science, pharma, and cleantech research to enable discoveries in functional structural biology, drug discovery, and battery research.

Ascend Evo 400 NMR magnet with a liquid helium hold-time of one year (Photo: Business Wire)

Bruker launches the **Ascend Evo 400** new standard 400 MHz NMR magnet with a liquid helium hold-time of one year to reduce cost of ownership and enhance

operational convenience. This novel magnet also has improved field homogeneity with new cryogenic shimming technology originally developed for ultra-high field magnets, in order to make sample shimming and operation even easier.

This 400 MHz innovation joins the **Ascend Evo 1.0 GHz** with ~65% lower liquid helium consumption over previous 1.0 GHz magnets. In late 2022, the **RIKEN Center for Biosystems Dynamics Research** in Yokohama, Japan and the **Universitat de Barcelona** were first to receive Ascend Evo 1.0 GHz systems, which are already generating exceptional data. They complement Bruker's **Avance™ Neo 1.2 GHz** systems with two-story 2 Kelvin magnets, which typically are shared at national NMR centers, as demonstrated by recent UK orders for two **1.2 GHz** spectrometers for **University of Warwick** and **University of Birmingham**. These two 1.2 GHz systems enable life science research in functional and structural biology and improve greentech research infrastructure for plant

biofuels, improving batteries, and solar cells.

Bruker offers helium recovery with its **HelioSmart-R**, a compact system to collect helium gas boil-off from magnets. Bruker announces successful installations of the HelioSmart-R recovery solution in pharma labs of Merck in Darmstadt, Germany, as well as at the University of South Carolina, with many more installations of HelioSmart-R expected in 2023.

Perry J. Pellechia, Director of NMR Services and Professor at University of South Carolina, commented: "We are pleased to be the first US lab to benefit from HelioSmart-R. With this new concept for recovery, we save 80% of helium and convert it into liquid helium using the liquefaction facilities at our university. We look forward to more sustainable and cost-effective lab operations."

The new **HelioSmart-L** solution for liquefaction, collects and liquifies helium gas boil-off from installed NMR magnets with over 95% recovery rate. HelioSmart-L collects steady-state losses from magnets during operations, as well as during helium refills, and then purifies and liquefies the helium creating a closed loop.

At ENC 2023, Bruker also introduces new industrial and pharmaceutical capabilities for the **Fourier™ 80** benchtop FT-NMR platform. The new **Fourier 80X-optimized 1H/7Li system** will be an essential tool for battery research to study atomic-level properties of lithium-containing materials critical for more efficient batteries.

Dr. Vick Singh, Director of Research & Development for **Dragonfly Energy** in Reno, Nevada, stated: "As we transition from fundamental materials development towards implementing new materials in prototypes and pilot lines, benchtop systems with lithium NMR can be a great tool." Bruker and Dragonfly Energy collaborate on analytical instruments, including NMR, to accelerate Dragonfly's pioneering battery technology research.

The new **Fourier 80 1H/13C/19F system** advances pharmaceutical research. 19F NMR is a powerful tool in drug discovery and development that provides information about chemical structure, formulation, safety, and toxicity of fluorinated drug molecules. This aids in optimizing efficacy, safety, and formulation of drug candidates.

Chemical engineer Philippe Robin, the CEO and co-founder of Alysophil SAS in France, explained: "We demonstrated the first real-world solution in AI-powered autonomous chemical synthesis for APIs, within the PIPAc project, in collaboration with NovAliX, De Dietrich Process Systems and Bruker. The unparalleled selectivity of the 19F Fourier 80 will dramatically improve the process of AI deep learning with highest-quality analytical information."

Dr. Falko Busse, President of the Bruker BioSpin Group, concluded: "We are delighted to introduce new innovations at this year's ENC. Advancing cleantech research is very important to the future of our planet. I am excited to see what new scientific, pharma and cleantech advancements will be enabled by NMR technology."

To learn about Bruker at ENC, please visit: <https://www.bruker.com/en/news-and-events/events/enc.html>

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Investor Contact:

Justin Ward

Sr. Director, Investor Relations & Corporate Development

Bruker Corporation

T: +1 (978) 663-3660 x1479

E: Investor.Relations@bruker.com

Media Contact:

Markus Ziegler

Sr. Director and Head of Group Marketing

Bruker BioSpin

T: +49 172 3733531

E: pr@bruker.com

Source: Bruker Corporation