



# National High Magnetic Field Laboratory

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Colleagues,

As you know, commercial FT-ICR mass spectrometers are now available with magnetic field up to  $B = 15$  T. You also know that various FT-ICR MS performance parameters scale directly with  $B$  or  $B^2$ . With the ongoing development of NMR superconducting magnets up to 22 T or higher, it is timely to discuss the scientific rationale and technical configuration for FT-ICR MS systems at magnet field of 18 T or higher.

On behalf of the NSF FT-ICR MS Facility at NHMFL and the DOE FT-ICR MS Facility at the Environmental Molecular Sciences Laboratory at PNNL, I am writing to invite you to participate in a workshop,

## **"Science Challenges and Design Concepts for Deploying a High Magnetic Field High Performance FT-ICR Mass Spectrometer System"**

**Wed/Thu 16-17 January, 2008**

**NHMFL, 1800 East Paul Dirac Drive, Tallahassee, Florida 32310-4005**

The primary purpose of the workshop is to identify **science drivers** that could justify investment in FT-ICR mass spectrometry at magnetic fields significantly higher than 15 Tesla. The structure of the workshop will be intentionally loose--i.e., say, 4-5 oral presentations to stimulate extensive discussions. Oral presentations will include applications to complex mixtures ranging from proteomics to petroleum, large biological molecules and their complexes, recent supercomputer-based simulations of the behavior of large numbers of ions at each stage of the experiment, current state-of-the-art high-field FT-ICR MS design and performance, and future magnet design options. Guided by the highest-impact science drivers, we propose to develop optimal configurations for both magnet and spectrometer.

We are inviting ~30 on-site and off-site (domestic and foreign) FT-ICR experts as well as magnet vendor and NHMFL magnet designers, and representatives from NSF and DOE. The conclusions from the workshop will be summarized in a white paper for circulation to federal funding agencies. For maximum availability to the user community, we propose to seek initial funding for two high-field FT-ICR MS systems, one at NHMFL and one at EMSL. Two initial systems will reduce the cost and risk, and heighten vendor interest.

We value your contributions, and hope that you will be able to join us for the Workshop. Please let me know at your earliest convenience if you will be able to participate. We shall cover your economy air fare and all local expenses. Thank you for your consideration.

On behalf of Jean Futrell (EMSL) and Alan Marshall (NHMFL),

Sincerely,

Alan G. Marshall  
Robert O. Lawton Professor of Chemistry & Biochemistry, FSU  
Director, Ion Cyclotron Resonance Program, NHMFL