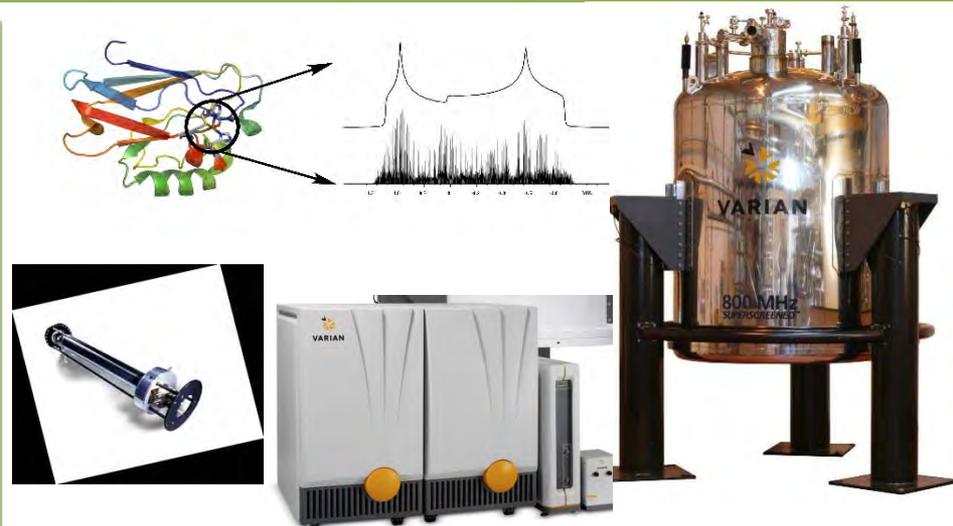


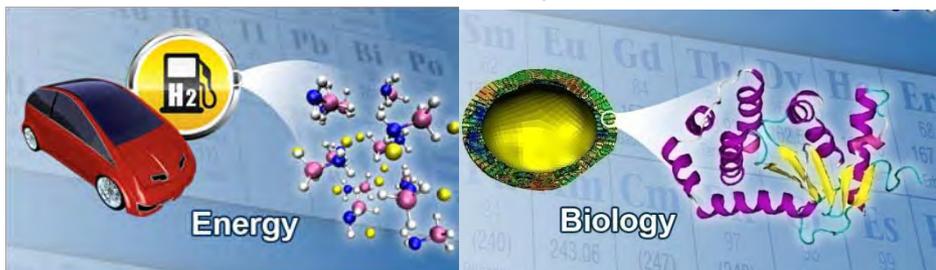
Capability/Need

- **First** 850-MHz wide-bore NMR system in North America
- Dedicated to solid-state NMR - primarily related to catalysis and energy but also bio-solids/surface interactions
- Will utilize unique *in situ* probes for catalysis and energy systems – high-temperature and constant flow conditions (see ARRA#22)
- **Fastest-spinning** magic-angle spinning probe (60 kHz) will allow highest resolution of complex materials in the solid-state



Science/Users

- Energy science/ emissions (CO_2 , NO_x , SO_x) cleanup/ biomass conversion applications
- Novel cryo-cooled probes to support solid-state metallo-protein and bio-membrane protein investigations
- Complement *ab initio* techniques to derive electronic and molecular parameters



EMSL Strategy Alignment; Specifics

- Science themes: Science of Interfacial Phenomena; Geochemistry/Biogeochemistry and Subsurface Science; Biological Interactions/Dynamics
- Cross-cutting challenges: Static-Dynamics; Unprecedented Resolution; Design/Syn Complex Materials; Predict Biological Function; Linking Theory/Experiment; Bridging Scales
- EMSL capability area: NMR and EPR
- Anticipated availability: January 2011
- Technical POC: Dave Hoyt