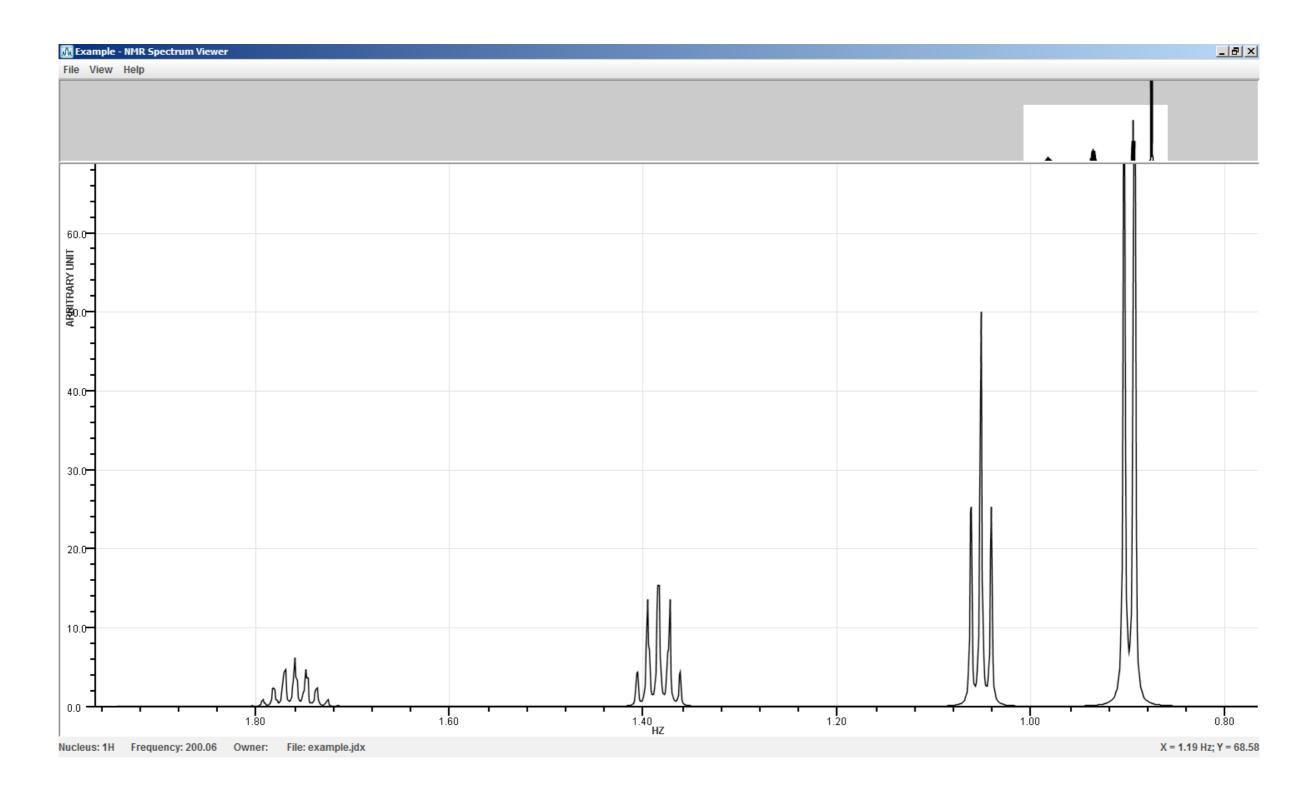
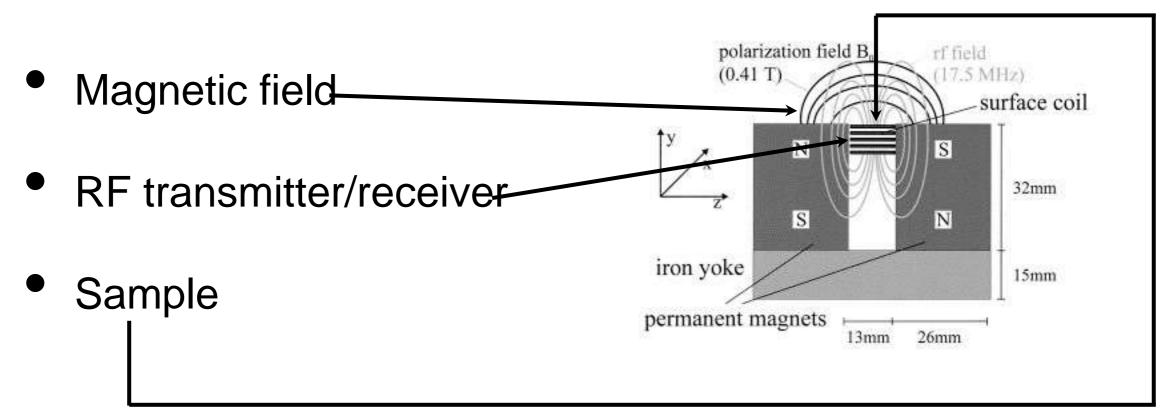
Single-sided Nuclear Magnetic Resonance for Physical and **Chemical Analysis**

Tyler Meldrum <u>tkmeldrum@wm.edu</u> Office: ISC 1060 Lab: ISC 1026

NMR is more than...



Open, Single-sided Magnets

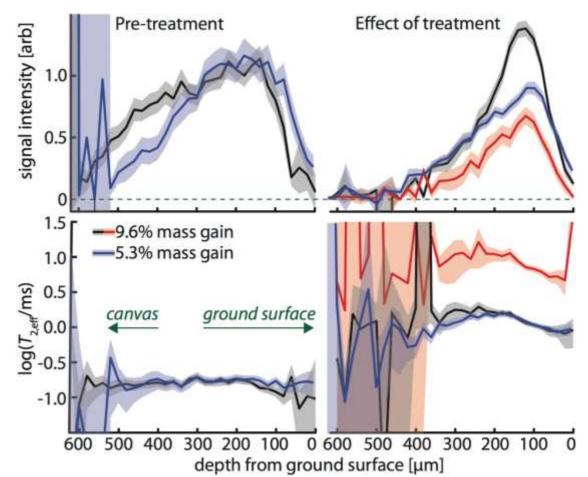




Blümich et al. The NMR-mouse: construction, excitation, and applications. Magn. Reson. Imag. 1998. doi:10.1016/S0730-725X(98)00069-1

Cultural Heritage

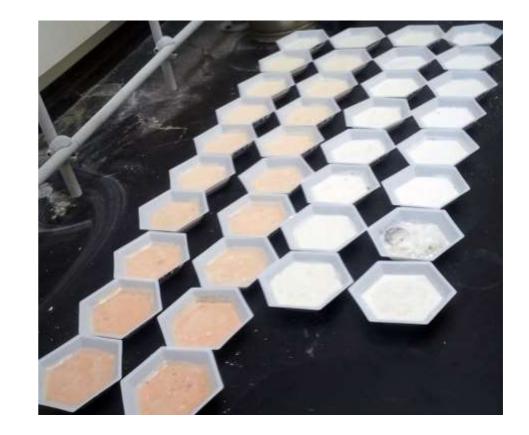




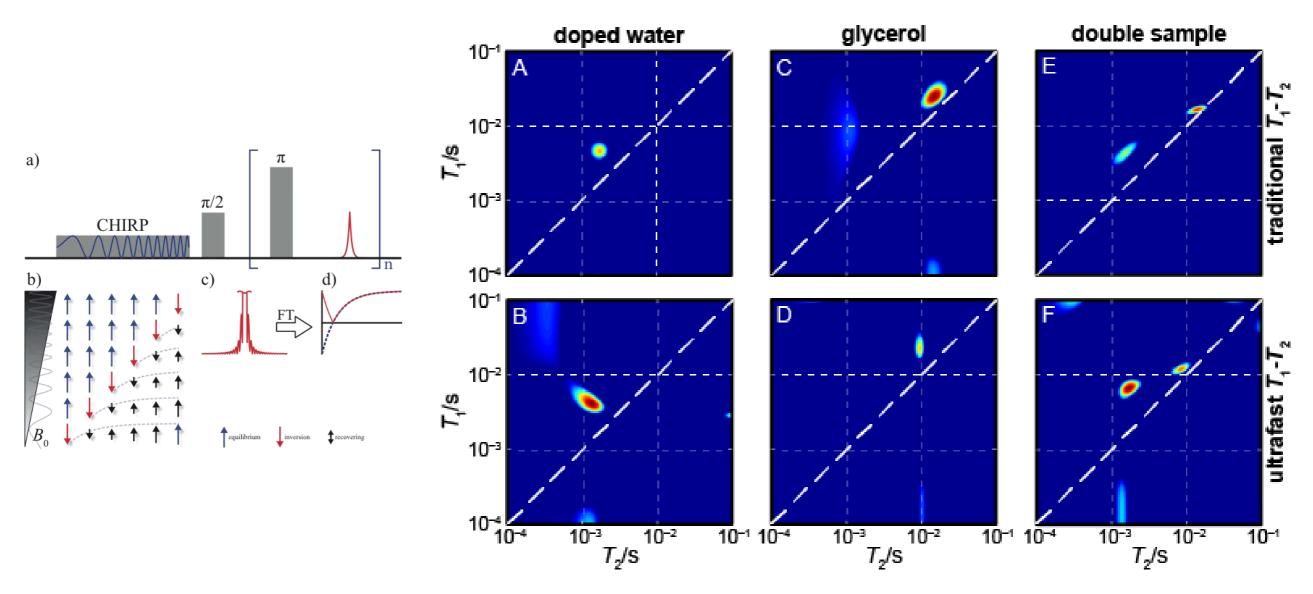
Fife, G. R. *et al.* Characterization of aging and solvent treatments of painted surfaces using single-sided NMR. *Magn. Reson. Chem.* **53**, 58–63 (2015).

Cultural Heritage

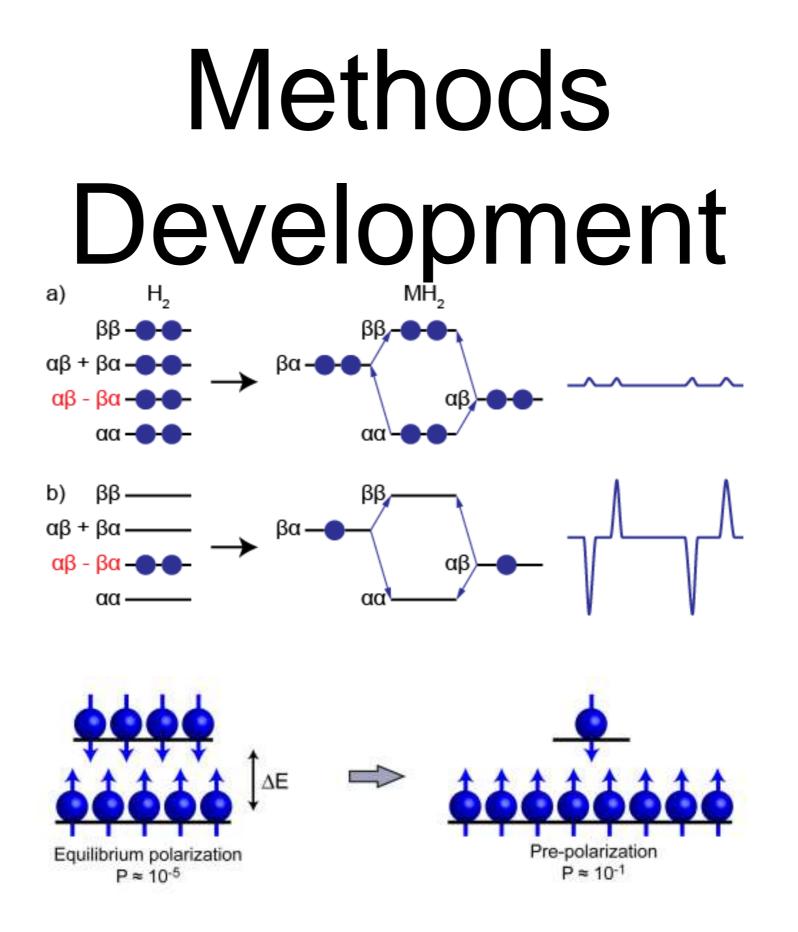




Methods Development Reduce acquisition time • Improve signal-to-noise ratio



King, J. N., Lee, V. J., Ahola, S., Telkki, V.-V. & Meldrum, T. Ultrafast Multidimensional Laplace NMR Using a Single-Sided Magnet. *Angew. Chemie Int. Ed.* 55, 5040–5043 (2016).



Specifics

• NMR

- Electronics, soldering, circuits
- Building components
- Sample prep
- Work with data analysis techniques, coding
- Data analysis (Matlab)
- Writing, making figures
- Come talk to me