

5 Selected Publications of Alan George Marshall

Comisarow, M. B.; Marshall, A. G. "Fourier Transform Ion Cyclotron Resonance Spectroscopy", *Chem. Phys. Lett.* **1974**, *25*, 282-283.. [First broadband FT-ICR MS paper. Based on analogy to FT-NMR, which Richard Ernst had introduced 8 years earlier. ICR bandwidth was 1000x higher than for NMR—that's (partly) why it took longer for FT-ICR.] **763** ISI citations.

Marshall, A. G.; Wang, T.-C. L.; Ricca, T. L. "Tailored Excitation for Fourier Transform Ion Cyclotron Resonance Mass Spectrometry", *J. Am. Chem. Soc.* **1985**, *107*, 7893-7897. (Primary reference for what is now known as stored-waveform inverse Fourier transform ("SWIFT") excitation---the optimal method for ion selection and activation in FT-ICR and quadrupole ion trap mass spectrometry. Another analog to NMR from ~1973.) **589** ISI citations.

Marshall, A. G.; Hendrickson, C. L.; Jackson, G. S. "Fourier Transform Ion Cyclotron Resonance Mass Spectrometry: A Primer," *Mass Spectrom. Rev.* 1998, *17*, 1-35. (The most-cited reference for FT-ICR MS.) **1,167** ISI citations.

Oomens, J.; Polfer, N.; Moore, D. T.; Marshall, A. G.; Eyler, J. R.; Meijer, G.; von Helden, G. "Charge-State Resolved Mid-Infrared Spectroscopy of a Gas-Phase Protein," *Phys. Chem. Chem. Phys.* 2005, *7*, 1345-1348. (First mid-IR spectrum of a gas-phase (i.e., totally unsolvated) protein, showing conservation of secondary structure from solution) **127** ISI citations.

Marshall, A. G.; Rodgers, R. P. "Petroleomics: Chemistry of the Underworld," *Proc. Natl. Acad. Sci. U.S.A.* **2008**, *105*, 18090-18095. (The idea that sufficiently detailed knowledge of the chemical constituents of petroleum enables prediction of its properties and behavior. Also showed that crude oil components have an average molecular weight of ~800 Da—*way* lower than most people thought at the time) **171** ISI citations.