

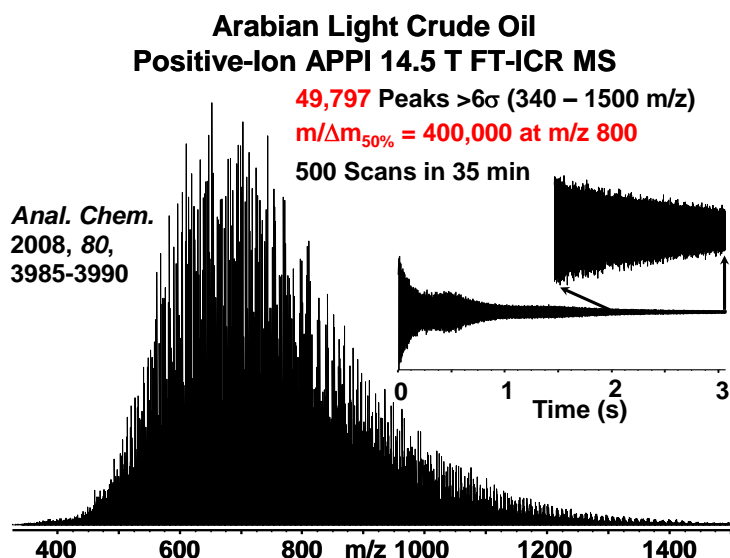
# Reading Chemical "Fine Print": The Key to Exploiting Nature's Compositional Complexity

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Most mass analysis relies on "nominal" mass accuracy (i.e., to within 1 Da). However, more and more applications are based on much more accurate mass measurement. Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR MS) offers 10-100 times higher mass resolving power than other mass analyzers.

High mass resolving power ( $m/\Delta m_{50\%} > 400,000$ ) offers two major advantages. First, it becomes possible to separate complex mixtures without prior chromatographic or gel separation. Second, elemental composition may be determined from accurate (to <1 ppm) mass measurement alone for unknown molecules up to ~1,000 Da. Examples from environmental, petrochemical, analytical, and biological (especially proteomics & lipidomics) problems will be presented, including world records for mass resolution.



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