


"What Engineers Should Know About Chemistry Instrumentation"



Charles M. Garner, Ph.D.
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Wednesday, October 21, 2009, 5:30, Room 109, Rogers Bldg.

Abstract: Modern chemistry instrumentation uses many clever applications of engineering and physics to reveal the identity or behavior of molecules (and sometimes atoms). I'll be attempting to do what is almost certainly impossible: to convey a useful degree of knowledge about a variety of chemical instruments in less than one hour. The talk will present (a) the basics of how an instrument works, (b) the kinds of information that can be obtained, and (c) what kinds of improvements would make these instruments more powerful and/or affordable. The talk will include two of my favorites, capillary gas chromatography and nuclear magnetic resonance, as well as mass spectroscopy and others.

Bio: I grew up in Las Vegas, Nevada and earned my B.S. in chemistry at UNLV. At one point during college, I transferred to the Colorado School of Mines to study chemical engineering. But I quickly learned that engineers like math far more, and chemistry far less, than I did. So I transferred back to UNLV, taking 22 credits (and 5 chemistry courses) one semester in order to get the BS degree. But I had fallen in love with Colorado, and went off to grad school at the University of Colorado, Boulder. There I studied organic and organometallic chemistry, and was such a lab rat that I never went skiing even once! Upon completing my PhD, I took a job with Procter & Gamble doing polymer chemistry (application: diapers!) but disliked the work and the area so much that I left within less than a year to take a postdoctoral position at the University of Utah. That went well, and after two years I came to Baylor. The Christian nature of the university was a big plus for me. What better place to work than a school that both values quality teaching and encourages/supports sophisticated research while acknowledging God's role in the creation of our universe and ourselves? For the past 20 years I have taught organic chemistry I & II, advanced organic laboratory and organic spectroscopy (a mixed grad/undergrad course). I currently direct the research of four graduate students, and am in charge of our graduate program, which has 50 students and is the largest grad program in the sciences at Baylor.

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Professor of Chemistry, Baylor University

Wednesday, October 21, 2009, 12:20, Room 312, Rogers Bldg.

