Daniel John Nelson

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Objective

As a young Ph.D. scientist in chemical physics, it is my goal to join a vibrant and dynamic technology company who will challenge me to solve complex, impactful problems, making full use of my wide-ranging portfolio of skills.

Professional Summary

I have had many professional challenges which I have had to overcome in my academic career, whether it was having to quickly learn electrical engineering to redesign and build a laser power supply or a lock-in laser servo, to designing new programming algorithms for better data analysis. However, the most valuable skill I have learned is thinking through multifaceted problems and solving them quickly and efficiently. Frequently this would mean wading into a discipline that was peripheral to the focus of my research and adapting to master it. I thrive off the challenge of solving a hard problem, and look forward to using that to your benefit.

Highlighted Skills and Experience

Examples available upon request.

- Design of complex laser servo and quadrupole electronics
- Combining mass spectrometry with spectroscopy for molecular identification
- Design and fabrication of complex mechanical devices
- SIMION, Gaussian 09, PESCAL, Mathematica, Maple, IGOR, and Origin technical programs
- Analytical and physical chemistry techniques
- Thin film nanocalorimetry of organic glasses
- FORTRAN, limited C++
- Laser design with total time and frequency control from continuous wave to femtosecond
- Ion and electron control in vacuum
- Technical writing

Laboratory Research Experience

Research Assistant — *JILA/University of Colorado, Boulder, CO* — *August 2010-present*

- Designed and optimized the complete rebuild of a combination mass spectrometry and photoelectron spectroscopy instrument, incorporating precise laser locking, ultra-high vacuum systems, flowing-afterglow plasma ion source, mass spectrometric analysis, and a hemispherical electron energy analyzer to study aromatic anions.
- Experience with a large variety of laser systems, including pulsed nano and femtosecond lasers (Nd:YAG, Ti:Sapphire, and dye, with nonlinear frequency conversion), and continuous wave, single frequency lasers (Ar^+, Kr^+, and a color center laser).
- Organized the Life After JILA seminar, providing networking opportunities for graduate students.
- Appointed Graduate Student Representative to the Fellows of JILA, acting as a liaison between JILA graduate students and Fellows.

Education

JILA/University of Colorado Boulder — **Ph.D. Chemical Physics** — expected May 2017

Advisor: W. Carl Lineberger — *Photoelectron Spectroscopy and Thermochemistry of Aromatic Compounds*

University of Wisconsin – Madison — **Bachelor of Science: Chemistry** — 2010

Advisor: Mark Ediger — *Nanocalorimetry of Vapor Deposited, Thermodynamically Stable Organic Glasses*

Professional Activities

In addition to being a teaching assistant to undergraduates and volunteering for the CU Wizards outreach program, I am member of the American Physical Society. I have presented posters at many scientific conferences and am a peer-reviewed author of scientific research.

References available upon request.