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**Relevant Experience:**

Dr. Hein is a Technologist working in the Planetary Ices and Planetary Surface Instruments groups at JPL. He has extensive experience working with UHV systems, mass spectrometers, electronics, charged particle optics, and instrument measurement/control systems for experimental research.

**Education:**

- Ph.D., Physics, June 2010, University of Manitoba, Winnipeg, MB, Canada  
Thesis: Electron Scattering from Laser-Excited  $^{138}\text{Ba}$  and  $^{174}\text{Yb}$
- B.Sc.(honors), Physics, June 2002, University of Manitoba, Winnipeg, MB, Canada

**Professional Experience:**

- Technologist at JPL (11/2015 – present)
- Caltech Postdoctoral Scholar at JPL (11/2014 – 10/2015)
- NPP Postdoctoral Scholar at JPL (11/2012 – 11/2014)
- Postdoctoral Fellow at University of Windsor, Windsor, ON, Canada (2010-2012)
- Postdoctoral Fellow at University of Manitoba, Winnipeg, MB, Canada (2010)

**Selected Publications: Researcher ID: A-7171-2013**

- A.C. Noell, T. Ely, D.K. Bolser, H. Darrach, R. Hodyss, P.V. Johnson, J.D. Hein, and A. Ponce, Spectroscopy and Viability of *Bacillus subtilis* Spores after Ultraviolet Irradiation: Implications for the Detection of Potential Bacterial Life on Europa. *Astrobiology*, **15**(1): p. 20-31 (2015).
  - W. Kedzierski, J.D. Hein, C.J. Tiessen, D. Lukic, J.A. Trocchi, T.Z. Mlinaric, and J.W. McConkey, Production of  $\text{O}(^1\text{D})$  following electron impact on  $\text{CO}_2$ , *Can J. Phys.*, **91**, 1044 (2013).
  - J.D. Hein, H. Al-Khazraji, C.J. Tiessen, D. Lukic, J.A. Trocchi, and J.W. McConkey, Excited atomic fragments following electron dissociation of pyrimidine, *J. Phys. B: At. Mol. Opt. Phys.*, **46**, 045202 (2013).
  - J.D. Hein, P.W. Zetner, C.J. Bostock, D.V. Fursa, I. Bray, T. Das, and R. Srivastava, Differential cross sections and electron-impact coherence parameters for elastic electron scattering from laser-excited  $^{138}\text{Ba}$ , *J. Phys. B: At. Mol. Opt. Phys.*, **45**, 115202 (2012).
  - J.D. Hein, S. Kidwai, P.W. Zetner, C.J. Bostock, D.V. Fursa, I. Bray, L. Sharma, R. Srivastava, and A. Stauffer, Electron-impact coherence parameters for electron-impact excitation of laser-excited  $^{174}\text{Yb} (\dots 6s6p\ ^3\text{P}_1)$ , *J. Phys. B: At. Mol. Opt. Phys.*, **44**, 075201 (2011).
  - J.D. Hein, S. Kidwai, P.W. Zetner, C.J. Bostock, D.V. Fursa, I. Bray, L. Sharma, R. Srivastava, and A. Stauffer, Differential cross sections for electron-impact excitation of laser-excited  $^{174}\text{Yb} (\dots 6s6p\ ^3\text{P}_1)$ , *J. Phys. B: At. Mol. Opt. Phys.*, **44**, 015202 (2011).
- J.D. Hein, C. Ududec, D.K. Sasaki, and P.W. Zetner, Integral cross sections for electron-impact ionization-excitation of laser-excited barium, *J. Phys. B: At. Mol. Opt. Phys.*, **43**, 0185206 (2010).