

Curriculum Vitae

Kevin Christopher France

Present Address:

Department of Physics and Astronomy
Johns Hopkins University
3400 N. Charles St.
Baltimore MD, 21218

Phone: 410-516-8485

Fax: 410-516-5494

Email: france@pha.jhu.edu

www: <http://www.pha.jhu.edu/~france/>

Education:

B.A. – *magna cum laude* with Distinction, College Prize in
Astronomy - Physics and Astronomy, Boston University, May 2000
M.A. – Astrophysics, Johns Hopkins University, September 2002
Ph.D. – Astrophysics, Johns Hopkins University, November 2005
Advisor: Prof. Paul D. Feldman
Title: "Far-Ultraviolet Molecular Hydrogen Fluorescence in
Photodissociation Regions"

Professional Positions:

1998 – 2000 Research Assistant, Ultraviolet Research Group, Center for
Space Physics, Boston University
2000 – 2005 Research Assistant, Sounding Rocket Group, Johns
Hopkins University
2005 – present Postdoctoral Fellow, Department of Physics and
Astronomy, Johns Hopkins University

Research Interests:

Far ultraviolet spectroscopy. Physics of molecular hydrogen formation, excitation, and interaction with dust in emission/reflection/planetary nebulae and the diffuse interstellar medium. Spectroscopic instrumentation, detectors, and calibration sources for ultraviolet astronomy. Infrared properties of gas and dust in nebulae and the diffuse interstellar medium.

Related Research Skills:

Data acquisition/analysis/language – IDL, C, C++, AutoCAD, LaTeX, *Spitzer* data analysis tools, *Spitzer* and *FUSE* proposal planning tools, Microsoft Word, Microsoft Powerpoint, SkyCat, ds9, and The Sky astronomy software

Optical Assembly – Experience with the design, fabrication, and Calibration of optical and ultraviolet telescopes and spectrographs

Calibration – Experience with evacuated calibration chambers and the use of photomultiplier tubes, microchannel plates, gas discharge Lamps, and electron impact / continuum lamps as calibration Sources and targets. Additional experience with the design, Fabrication, and testing of ultraviolet calibration sources.

Refereed Publications:

R. E. Lupu, K. France, and S. R. McCandliss "Discovery of Ly α Pumped Molecular Hydrogen Emission in the Planetary Nebulae NGC 6853 and NGC 3132", 2006, ApJ, v644

K. France & S. R. McCandliss "Molecular Hydrogen in Orion as Observed by the *Far Ultraviolet Spectroscopic Explorer*" 2005, ApJL, v629

K. France, B-G Andersson, S. R. McCandliss, P. D. Feldman "Fluorescent Molecular Hydrogen in IC 63: *FUSE*, HUT, and Rocket Observations" 2005, ApJ, v628

K. France, S. R. McCandliss, E. B. Burgh, P. D. Feldman "Rocket and *FUSE* Observations of IC 405: Differential Extinction and Fluorescent Molecular Hydrogen," 2004, ApJ, v616

Refereed Publications in Preparation/Submitted:

E. B. Burgh, K. France, and S. R. McCandliss "Direct Measurement of the Ratio of Carbon Monoxide to Molecular Hydrogen in the Diffuse Interstellar Medium", ApJ-*submitted*

K. France, S. R. McCandliss, and R. E. Lupu "A Cometary Bow Shock and Mid-Infrared Emission Variations Revealed in *Spitzer* Observations of IC 405", ApJ-*submitted*

S. R. McCandliss, K. France, R. E. Lupu, E. B. Burgh, K. R. Sembach, J. W. Kruk, B-G Andersson, and P. D. Feldman "Molecular and Atomic Excitation Stratification in the Outflow of the Planetary Nebula M 27", ApJ (2006)

K. France, S. R. McCandliss, E. B. Burgh, and P. D. Feldman "On the Search for Far-Ultraviolet Molecular Hydrogen Fluorescence in the Reflection Nebulae NGC 2023 and NGC 7023", *ApJ* (2007)

Conference Proceedings:

K. France, B-G Anderson, S. R. McCandliss, E. B. Burgh, D. Hammer, K. E. S. Ford, D. A. Neufeld, and P. D. Feldman "Fluorescent Molecular Hydrogen in IC 63," *Astrophysics in the Far Ultraviolet*, August 2004

S. R. McCandliss, K. France, P.D. Feldman, K. Glazebrook, G. Meurer, L. Bianchi, H. W. Moos, J. W. Kruk, W. P. Blair, I. Baldry "FORTIS: Pathfinder to the Lyman Continuum," *Proceedings of the SPIE*, June 2004

K. France, E. B. Burgh, S. R. McCandliss, and P. D. Feldman "Far Ultraviolet Dust Scattering and Extinction in IC 405" *Astrophysics of Dust*, May 2003

S. R. McCandliss, K. France, P. D. Feldman, R. Pelton "Long-Slit Imaging Dual-Order Spectrograph: LIDOS," *Proceedings of the SPIE*, 5854, August 2002

E. B. Burgh, S. R. McCandliss, R. Pelton, K. France, P. D. Feldman "Windowless Vacuum Ultraviolet Collimator," *Proceedings of the SPIE*, 4498, July 2001

NASA Supported Guest Investigator Programs:

FUSE Cycle4, D127: "Fluorescent Molecular Hydrogen in IC 405 and NGC 7023 - The Role of Environment" (PI-S. R. McCandliss)

FUSE Cycle5, E120: "Far-Ultraviolet Signature of Molecular Hydrogen Emission in Planetary Nebulae: Evolving Density and Radiation Fields" (PI-S. R. McCandliss)

FUSE Cycle 6, F169: "Search for Lyman Continuum Emission from Bright Non-Zero Redshift Objects in the Sloan/GALEX Merged Catalogue" (PI-McCandliss)

Spitzer Cycle2, P20434: "A Mid and Far-Infrared Study of IC 405: PAH and Dust Emission in a Diverse Environment" (PI-S. R. McCandliss)

Spitzer Cycle 3, P30696: "A Comparison of the Infrared and Ultraviolet Properties of Photodissociation Regions" (PI-S. R. McCandliss)