

# Curriculum Vitae

## Kevin France

Laboratory for Atmospheric and Space Physics  
University of Colorado, UCB 600  
3665 Discovery Dr.  
Boulder, CO 80309, USA

Office: Room N214 – LASP SPSC  
Room D219 – Duane Physics  
Phone: 303-492-1429

Email: [kevin.france@colorado.edu](mailto:kevin.france@colorado.edu)  
www: <http://cos.colorado.edu/~kevinf/>

### Education:

Ph.D. – Astrophysics, Johns Hopkins University, 2006  
Advisor: Paul D. Feldman  
Title: “Far-Ultraviolet Molecular Hydrogen Fluorescence in  
Photodissociation Regions”  
B.A. – Physics and Astronomy, Boston University, 2000  
*magna cum laude* with Distinction, College Prize in Astronomy

### Professional Positions:

2021 – Present: Associate Professor, Department of Astrophysical and  
Planetary Sciences & LASP – University of Colorado  
2020 – Present: Associate Chair for Graduate Studies, Department of  
Astrophysical and Planetary Sciences – University of Colorado  
2015 – 2021: Assistant Professor, Department of Astrophysical and  
Planetary Sciences & LASP – University of Colorado  
2013 – 2015: Assistant Research Professor, Department of Astrophysical  
and Planetary Sciences – University of Colorado  
2013 – 2015: NASA Nancy Grace Roman Technology Fellow  
2007 – Present: Research Associate or Fellow, CASA – University of  
Colorado  
2006 – 2007: Postdoctoral Fellow, CITA and Department of  
Astronomy and Astrophysics, University of Toronto  
2000 – 2006: Research Assistant, Sounding Rocket Group, Johns  
Hopkins University  
1998 – 2000: Research Assistant, Ultraviolet Research Group, Center for  
Space Physics, Boston University

## Science Interests:

Dr. France's research group, The [Colorado Ultraviolet Spectroscopy Program \(CUSP\)](#), is an astrophysics research group at the University of Colorado. CUSP uses a combination of observation and space-borne experiments to study exoplanets and their host stars, protoplanetary disks, supernova remnants and the ionizing radiation output of massive stars. CUSP comprises more than 30 researchers, including undergraduate and graduate students, research scientists, engineers, and faculty.

## Project Leadership and Science Team Affiliations:

- Voting Member and UV spectrograph (**LUMOS**) study-PI – **LUVOIR Surveyor Science and Technology Definition Team (2016 – 2020)**
- Principal Investigator – **University of Colorado Ultraviolet Rocket Group (2012 – present)**
- Principle Investigator – **Colorado Ultraviolet Transit Experiment (CUTE) CubeSat Mission (2016 – present)**
- Principal Investigator: **Euv Stellar Characterization for Atmospheric Physics and Evolution (ESCAPE) Small Explorer Mission Concept (2018 – present)**
- Principle Investigator & co-PI – **MUSCLES** Treasury Survey & **Mega-MUSCLES** Surveys, *Hubble Space Telescope (2011 – present)*
- **HST-Cosmic Origins Spectrograph** Science Team (2009 – 2013)
- **HST-Cosmic Origins Spectrograph** Instrument Development Team (2007 – 2010)
- Principal Investigator – **HEROICs** Ultraviolet Detector Development (2011 – 2016)
- Referee – The Astrophysical Journal / Letters, Applied Optics, Icarus, MNRAS
- Reviewer – NASA Postdoctoral Program, NASA NSTRF, NASA APRA
- *Hubble Space Telescope* Time Allocation Panel Reviewer and **Space Telescope Users Committee (2012 – present; 2019 – present)**
- *Chair of Space Telescope Users Committee (2020 – present)*
- Astrophysics Committee Member – **NASA Sounding Rocket Working Group (2014 – 2018)**
- University of Colorado Apache Point Observatory (2008 – 2019) Time Allocation Committee
- American Astronomical Society

## Publications:

>145 refereed publications, > 50 instrument conference proceedings.

> 7000 citations, h-index = 45, i-index = 125

ADS:

<https://tinyurl.com/y22fxlxy>

Google Scholar:

<https://scholar.google.com/citations?user=I2IXrWwAAAAJ&hl=en>

## PI Science and Instrumentation Programs:

> \$20M in PI/co-PI/admin-PI NASA funding awarded since 2011

- HST Cycle 29, 16701: "Mega-MUSCLES Extension for Atmospheric Transmission Spectroscopy: Essential Ultraviolet Stellar Characterization for JWST Transiting Planet Targets" (LASP **PI-K. France**) 115 orbits, \$537,315
- Astronomy and Physics Research and Analysis, 2021: "Colorado Ultraviolet Transit Experiment: Science Mission and Operations" (**PI- K. France**) – \$1,246,894
- Astronomy and Physics Research and Analysis, 2021: "SISTINE and FLUID Sounding Rocket Payloads" (**PI- K. France**) – \$1,779,061
- NASA Astrophysics Small Explorer: "Euv Stellar Characterization for Atmospheric Physics and Evolution" (ESCAPE) Small Explorer Mission (**PI-K. France**) – Phase A, \$1,997,000
- Strategic Astrophysics Technology, 2019: "Advancing the Performance, Stability, and Scalability of Protected Aluminum Coatings for Next Generation Astrophysics Telescope Optics" (LASP **PI-K. France**), \$365,050
- HST Cycle 28, 16166: "MUSCLES Extension for Atmospheric Transmission Spectroscopy: Essential Ultraviolet Stellar Characterization for Guaranteed JWST Transiting Planet Targets" (**PI-K. France**) – 57 orbits, \$273,354
- HST Cycle 28, 16129: "Outflows and Disks around Young Stars: Synergies for the Exploration of Ulyses Spectra (ODYSSEUS)" (disk lead co-I **K. France**) – Legacy AR, \$348,000
- HST Cycle 26, 15635: "Recovering Stellar Lyman alpha and O I Emission Line Profiles from Airglow-Dominated COS Spectra of Cool Dwarf Stars" (admin **PI-K. France**) – Legacy AR, \$387,123
- HST Cycle 25, 15070: "An HST Spectroscopic Study of Protoplanetary Disk Abundances: CO/H2 Conversion Factors and Absolute Abundances for JWST" (**PI-K. France**) – 42 orbits, \$441,743
- HST Cycle 25, 15071: "The Mega-MUSCLES Treasury Survey: Measurements of the Ultraviolet Spectral Characteristics of Low-mass Exoplanetary Systems" (**co-PI -K. France**) – 157 orbit Treasury, \$150,324

*NASA Earth and Space Science Fellowships, 2017: Bridging the Gap: Connecting Transition Disk Chemistry Models to HST/ALMA Observations*" (PI-K. France, student-Nicole Arulanantham), \$135,000 awarded

*HST Cycle 25, 15338: "NUV Transit Spectroscopy of HD189733b: Measuring the Mass-loss and Ionization State of a Prototypical Escaping Atmosphere"* (Admin **PI-K. France**) – 15 orbits, \$145,964

Astronomy and Physics Research and Analysis, 2016 and 2020 Initial Science Support: "Colorado Ultraviolet Transit Experiment: Mass-loss and Magnetic Fields in Exoplanetary Systems" (**PI- K. France**) – \$3,845,879 total awarded

*HST Cycle 24, 14633: "An HST-COS SNAP Study of Star-Planet Interactions"* (**PI-K. France**) – 80 orbits, \$150,796 awarded

*HST Cycle 24, 14604: "The HST-ALMA connection: Transitional Disks in Lupus"* (Admin **PI-K. France**) – 15 orbits, \$151,541 awarded

*HST Cycle 23-mid, 14469: "The HST-ALMA connection: measuring the FUV spectrum of a newly discovered transition disk down to the H2 and CO photodissociation regime"* (Admin **PI-K. France**) – 5 orbits, \$45,844 awarded

*HST Cycle 23, 14100: "A Direct Imaging Experiment to Determine the Origin of H2 Emission from M dwarf Exoplanetary Systems"* (**PI-K. France**), 8 orbits, \$113,001 awarded

Astronomy and Physics Research and Analysis, 2015 and 2019 extension: "Development and Flight-testing of Astronomical Instrumentation for Future NASA Astrophysics Missions" (**PI- K. France**) – \$4,4430.690 total awarded

*HST Cycle 22, 13650: "The MUSCLES Treasury Survey: Measuring the Ultraviolet Spectral Characteristics of Low-mass Exoplanet host Stars"* (**PI-K. France**) – 125 orbit Treasury + XMM + Chandra, \$654,716 awarded

*Chandra Cycle 16, 16200943: "X-ray MUSCLES"* (**PI-K. France**) –120 ksec \$39,820 awarded

Astronomy and Physics Research and Analysis, 2013: "Advanced Coatings Enabling High Performance Instruments for Astrophysics" (PI- Nikzad, **Colorao PI – K. France**) – \$280,598 awarded to Univ of Colorado

*NASA Space Technology Research Fellowships, 2013: "Development of High-reflectivity Optical Coatings for the Vacuum Ultraviolet and Verification on a Sounding Rocket Flight"* (PI-K. France, student-Chris Moore), \$247,000 awarded

*HST Cycle 21, 13372: "Mapping the magnetospheric structure at outburst of the pre-main sequence close binary AK Sco"* (**Admin PI-K. France**) – 14 orbits, \$82,325 awarded

Nancy Grace Roman Technology Fellowship in Astrophysics 2013: "HEROIC Detector Development for Future UV/Visible Astronomy Missions" (**PI – K. France**) – \$292,578 awarded

Astronomy and Physics Research and Analysis, 2012: “Development and Flight-testing of Next Generation Technology for Ultraviolet Astronomy” (**PI– K. France**) – \$2,223,756 awarded

*HST* Cycle 20, 12876: “WH<sub>2</sub>IPS: Warm H<sub>2</sub> in Protoplanetary Systems” (**PI-K. France**) – 22 orbits, \$112,927 awarded

Astronomy and Physics Research and Analysis, 2011: “Development of HEROICS: High-Sensitivity, High Dynamic Range Detector Systems for Ultraviolet Astronomy” (**PI– K. France**) –\$1,645,365 awarded

*HST* Cycle 19, 12464: “Project MUSCLES: Measuring the Ultraviolet Spectral Characteristics of Low-mass Exoplanetary Systems” (**PI-K. France**) – 14 orbits, \$146,938 awarded

Astronomy and Physics Research and Analysis, 2009: “Development and Flight Testing of High-Efficiency Echelles and Detectors for the Future of Ultraviolet Astronomy” (PI-Beasley, **science lead – K. France**) - \$2,365,008 awarded

*Spitzer* Cycle 3, P30696: “A Comparison of the Infrared and Ultraviolet Properties of Photodissociation Regions” (PI-McCandliss, **primary author-K. France**) - \$65,680 awarded

*Spitzer* Cycle2, P20434: “A Mid and Far-Infrared Study of IC 405: PAH and Dust Emission in a Diverse Environment” (PI-McCandliss, **primary author-K. France**) - \$22,875 awarded

*FUSE* Cycle 8, H056: “Characterizing H<sub>2</sub> Fluorescence, Dust, and Diffuse Stellar Observations in the Magellanic Clouds” (PI-McCandliss, **primary author-K. France**) - 160 ks

*FUSE* Cycle 8, H058: “Expanded Lyman Continuum Search, 19 Far-UV Bright Galaxies above  $z=0.017$ ” (PI-McCandliss) - 1.526 Ms

*FUSE* Cycle 6, F169: “Search for Lyman Continuum Emission from Bright Non-Zero Redshift Objects in the Sloan/GALEX Merged Catalogue” (PI-McCandliss) - \$31,000 awarded

*FUSE* Cycle5, E120: “Far-Ultraviolet Signature of Molecular Hydrogen Emission in Planetary Nebulae: Evolving Density and Radiation Fields” (PI-McCandliss, **primary author-K. France**) - \$35,900 awarded

*FUSE* Cycle4, D127: “Fluorescent Molecular Hydrogen in IC 405 and NGC 7023 - The Role of Environment” (PI-McCandliss, **primary author-K. France**) - \$29,664 awarded

## **Students, Postdoctoral Scholars Mentored/Supervised:**

### **Postdoctoral**

Brian Fleming – Ph.D. Johns Hopkins University, 2013

*Publications:* Fleming et al. 2015, 2016 (SPIE), 2018 (JATIS)

**Currently:** Asst Research Prof – University of Colorado

Sebastian Pineda – Ph.D. Caltech, 2016

*Publications:* Pineda et al. 2020 – ApJ, in prep.

Wilson Cauley – Ph.D. Rice University, 2015

Publications: Cauley et al. 2020 – ApJ, in prep.

Nick Kruczek – Ph.D. University of Colorado, 2019

Publications: Kruczek et al. 2019 – ApJ

Ambily Suresh – Ph.D. University of Calcutta, 2019

Publications: Suresh et al. 2020 – AJ, in prep.

## **Graduate**

Roxana Lupu – Johns Hopkins University, supporting Ph.D. work (2009)

Publications: Lupu, France, & McCandliss, ApJ 2006

**Currently:** Research Scientist – NASA/Ames

Eric Schindhelm – University of Colorado, supporting Ph.D. work (2012)

Publications: Schindhelm et al. – ApJ 2012a,b

**Currently:** Program Analyst – Ball Aerospace

Brian Fleming - Johns Hopkins University, supporting Ph.D. work (2013)

Publications: Fleming et al., - ApJ 2010

**Currently:** Asst Research Prof – University of Colorado

Matthew McJunkin – University of Colorado, Comps-2 and Ph.D. (2016)

Publications: McJunkin, France et al. – ApJ 2013, 2014, 2016

Keri Hoadley – University of Colorado, Comps-2 and Ph.D. (2017)

Publications: Hoadley, et al. - ApJ 2015, 2017 and SPIE 2014, 2015, 2016, 2017

**Currently:** Caltech Prize Fellow in Astrophysics, Assistant Professor at University of Iowa

Parke Loyd – University of Colorado, Comps-2 and Ph.D. (2017)

Publications: Loyd & France – ApJS 2014, Loyd et al. - 2016, 2017

**Currently:** Research Scientist – Eureka Scientific

Christopher Moore – University of Colorado, NASA Space Technology

Research Fellow (France is PI of NSTRF), Ph.D. (2017)

Publications: Moore et al. – SPIE 2014, 2015, 2016, 2017

**Currently:** Research Scientist (permanent) – SAO & Harvard/CfA

Jennifer Kulow – University of Colorado, Comps-2

Publications: Kulow et al. – ApJ 2014

Allison Youngblood – University of Colorado, Ph.D. (2017)

Publications: Youngblood et al, ApJ 2016, 2017; AJ 2017

**Currently:** Astrophysicist (permanent civil servant), NASA/GSFC

Nick Kruczek – University of Colorado, Ph.D. (2019)

Publications: Kruczek et al. - AJ 2017

**Currently:** Research Scientist-1 – University of Colorado

Nicole Arulanantham – Comps-2 and Ph.D. (2020)

Publications: Arulanantham et al. - ApJ 2018, 2020a,b

**Currently:** Giacconi Prize Fellow, Space Telescope Science Institute

Robert Kane – Mechanical Engineering Masters (2017)

Publications: France, Nell, Kane et al. 2013, Kane et al. - SPIE 2013

**Currently:** Mechanical Engineer – Blue Canyon Technology  
Nicholas Nell – Comps-2 and Ph.D. (expected 2020)  
Publications: France, Nell, et al. 2010, 2013, Nell et al. - SPIE 2016, 20  
Fernando Cruz-Aguirre – Comps-2 and Ph.D. (expected 2024)  
Publications: --  
Parker Hinton – Comps-2 and Ph.D. (expected 2025)  
Publications: --  
Patrick Behr - Comps-2 and Ph.D. (expected 2026)  
**Undergraduate:** dozens

## **Classroom Teaching at the University of Colorado:**

ASTR 1020 – Intro to Astronomy II...Spring 2019  
ASTR 1200 – Stars & Galaxies...Fall 2020  
ASTR 2020 – Space Astronomy...Spring 2017, Fall 2018  
ASTR 3520 – Astronomical Observations and Instrumentation II...Spring  
2016, Spring 2018, Spring 2021  
ASTR 5760 – Graduate Astronomical Instrumentation...Spring 2015  
ASTR 5780 / ASEN 5440 – Space Mission Development....Fall 2015, Fall 2017,  
Fall 2019

## **Invited Talks and Presentations (past 5 years):**

- Ultraviolet Sky Surveys and the Path to Life Conference...October 2020 *(invited)*
- Hubble Space Telescope 30<sup>th</sup> Anniversary Conference...September 2020 *(invited)*
- NASA Exoplanet Program Analysis Group Meeting...June 2020 *(invited)*
- Stars and Planets in the Ultraviolet...May 2020 (postponed) *(invited)*
- Penn State University Colloquium...February 2020 *(invited)*
- Cubesat Workshop, American Astronomical Society Meeting...January 2020 *(invited)*
  
- Exoplanet Transit e-Workshop, National Solar Observatory...October 2019 *(invited)*
- Austrian Space Science Institute Astrophysics Seminar...October 2019 *(invited)*
- Kavli Institute for Astronomy and Astrophysics, Peking *(invited)* University...June 2019
- University of Maryland Colloquium...May 2019 *(invited)*
- Solar Focus Meeting, National Solar Observatory...May 2019 *(invited)*
- Rice University Colloquium...March 2019 *(invited)*

- Herzberg Institute / National Research Council of Canada Colloquium...December 2018 *(invited)*
- University of British Columbia Colloquium...December 2018 *(invited)*
- Lunar and Planetary Laboratory (U of A) Seminar...November 2018 *(invited)*
- Johns Hopkins University Astrophysics Seminar...October 2018 *(invited)*
- Inner Protoplanetary Disk Conference...October 2018 *(invited)*
- AXIS (NASA Probe mission concept) Science Team Workshop Talk...August 2018 *(invited)*
- Jet Propulsion Laboratory Colloquium...July 2018 *(invited)*
- NASA Heliophysics Summer School Guest Lecturer...July 2018 *(invited)*
- International Space Science Institute Workshop Talk...May 2018 *(invited)*
- NASA Cosmic Origins Program Analysis Group Workshop Talk...January 2018 *(invited)*
  
- Trinity College Dublin Colloquium...October 2017 *(invited)*
- Laboratoire Astrophysique d'Marseille Colloquium...October 2017 *(invited)*
- University of Colorado Colloquium...October 2017 *(invited)*
- NASA LUVOR Science Seminar...July 2017 *(invited)*
- Radio Exploration of Habitability Conference...May 2017 *(invited)*
- NASA Great Observatory Workshop...January 2017 *(invited)*
  
- Exoplanetary Space Weather, Climate and Habitability Workshop...December 2016 *(invited)*
- Caltech Colloquium...October 2016 *(invited)*
- Ball Aerospace Seminar...October 2016 *(invited)*
- Royal Observatory of Scotland Workshop...July 2016 *(invited)*
- SPIE Astronomical Telescopes Conference...June 2016 *(invited)*
- NASA Ames Research Center SOFIA Science Colloquium...April 2016 *(invited)*
- Southwest Research Institute Colloquium...April 2016 *(invited)*
- St. Andrews University Colloquium...March 2016 *(invited)*
- Protostellar Accretion Workshop...March 2016 *(invited)*

## **Professional References:**

Professor James C. Green, University of Colorado at Boulder  
 Department of Astrophysical and Planetary Sciences  
 UCB 389



Boulder, CO 80309  
(303) 492-7645 / -7712  
[James.Green@colorado.edu](mailto:James.Green@colorado.edu)

Professor Robert P. Kirshner, Harvard University  
Harvard-Smithsonian Center for Astrophysics  
60 Garden St. , MS 19  
Cambridge, MA 02138  
(617) 495-7519  
[rkirshner@cfa.harvard.edu](mailto:rkirshner@cfa.harvard.edu)

Professor Lynne A. Hillenbrand, California Institute of Technology  
Department of Astrophysics  
MC 249-17  
Pasadena, CA 91125  
(626) 395-6587  
[lah@astro.caltech.edu](mailto:lah@astro.caltech.edu)

Professor Stephan R. McCandliss, Johns Hopkins University  
Department of Physics and Astronomy  
3400 N. Charles St.  
Baltimore, MD 21218  
(410) 516-5272  
[stephan@pha.jhu.edu](mailto:stephan@pha.jhu.edu)

Dr. Aki Roberge, NASA/Goddard Space Flight Center  
NASA/GSFC Mail Code 667  
Greenbelt, MD 20771  
301.286.2967  
[aki.roberge-1@nasa.gov](mailto:aki.roberge-1@nasa.gov)

Professor Paul D. Feldman, Johns Hopkins University  
Department of Physics and Astronomy  
3400 N. Charles St.  
Baltimore, MD 21218  
(410) 516-5494  
[pdf@pha.jhu.edu](mailto:pdf@pha.jhu.edu)

(more references available upon request)