JAMES NEGUS

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EDUCATION

The University of Colorado Boulder — Expected May 2023
Ph.D., Astrophysics
Department of Astrophysical and Planetary Sciences

The University of Colorado Boulder — December 2019
M.S., Astrophysics
Department of Astrophysical and Planetary Sciences

The University of Chicago — June 2013
B.A., Physics with a Specialization in Astrophysics — Dean's List: 2009 - 2010
Department of Physics

WORK EXPERIENCE

Astronomical Society of the Pacific — San Francisco, CA
Junior Board Fellow — February 2019 - Present

Add the voice of an early career professional astronomer to the Board.

Development, Awards, and Diversity committee member.

The University of Colorado Boulder — Boulder, CO
Graduate Teaching Assistant — August 2017 - Present

Serve as a teaching assistant for the following undergraduate courses:

Astronomical Observations and Instrumentation (14+ students)

Black Holes (160+ students)

Introductory Astronomy (two 20+ student labs).

Supervise observing trips to the Apache Point Observatory and the Very Large Array, evaluate lab reports, demonstrate lab procedures, conduct exam reviews, and host office hours.

Radiometrics Corporation — Boulder, CO
Sodar Product Line Manager — April 2016 - July 2017

Subject matter and engineering design expert on Sonic Detection And Ranging Systems (SoDARS).

Managed documentation, business growth, software development, product improvements, and roadmap for Radiometrics sodar product line.

Approved all changes to the sodar product line BOM and software/firmware; ensured change control documents were created and properly completed.

Vetted all customer-facing sodar technical documentation, including technical specifications, operator manuals, and TechNotes/Service Bulletins.

Participated in customer training and installation support as needed to meet customer commitments.

RMA Manager/ Project Analyst/ IT April 2015 - April 2016

Analyzed boundary layer physics for microwave retrievals of thermodynamic atmospheric profiles utilizing Python routines.

Worked closely with NASAs JPL and the National Radio Astronomy Observatory to improve observations of boundary layer physics.

Generated operating and procedural manuals for instrument production, testing, quality control, engineering, and administration.

Managed in-house IT support for local servers, virtual machines, network firewalls, user PCs, printers, and employee devices.

Engineering Intern November 2014 - April 2015

Aided in the development of an artificial neural network to deliver boundary layer thermodynamic data vital for accurate high-impact local weather forecasting and atmospheric remote microwave sensing retrievals.

RESEARCH EXPERIENCE

The University of Colorado Boulder Boulder, CO
Graduate Research Assistant July 2017 - Present

Analyze galactic spectra in the SDSS's Mapping Nearby Galaxies at APO (MaNGA) catalog, which consists of 10,000 galaxies observed with Integral Field Unit (IFU) spectroscopy.

Identify high ionization and broad lines emission signatures of Active Galactic Nuclei in MaNGA to determine their population size within the catalog.

The University of Chicago Chicago, IL
Exoplanet Student Researcher March - June 2013

Utilized transit spectroscopy techniques to reveal the composition and physical conditions of exoplanets atmospheres using the Magellan and Gemini ground-based telescopes, and the Hubble Space Telescope.

Laboratory for Atmospheric and Space Physics Boulder, CO
Solar Physics REU Research Assistant June - August 2012

Analyzed live streams of solar data from the Geostationary Operational Environmental Satellite (GOES) and instruments on NASA's Solar Dynamics Observatory (SDO) using IDL programming language.

Worked on the development of an artificial neural network to better classify and predict solar flares.

Presented research results to scientists from the Laboratory for Atmospheric and Space Physics, National Center for Atmospheric Research, High Altitude Observatory, and the Space Weather Prediction Center.

National Radio Astronomy Observatory, Green Bank Green Bank, WV
Radio Astronomy Research Assistant July 2010

Mapped the galactic plane along with extragalactic regions using data acquisition software linked to the University of North Carolinas SKYNET operation, an internationally distributed network of radio telescopes in Chile and several regions in the US and Europe.

Assisted in the construction of a ground-based antenna to detect radio emission from Jupiter.

Presented research results to scientists and graduate students from UNC-Chapel Hill.

ORGANIZATIONS & LEADERSHIP

Astrobites National
Writer July 2019 - Present

Contribute research based articles to the site.

Fiske Planetarium : "Science Under the Dome" Boulder, CO
President August 2020 - Present

Advise members on the direction of the organization, manage formal documents (i.e. the bylaws, university proceedings, and financial statements), recruit new members, and strategize the direction of the operation.

Public Talk Coordinator August 2019 - Present

Interview and evaluate applicants, and help accepted speakers develop a professional-quality presentation to deliver to the CU community and general public.

Mercury Magazine San Francisco, CA
Writer July 2019 - Present

Contribute research based articles to the magazine.

Astronomical Society of the Pacific San Francisco, CA
Member February 2019 - Present

Receive the quarterly magazine, "Mercury", which provides updates on the latest astronomical research.

Science Buffs Boulder, CO
Writer June 2018 - Present

Contribute research based articles to the site.

American Astronomical Society National
Member February 2018 - Present

Attend annual conferences designed to showcase pioneering research within the astronomical research community.

Sommer's Bausch Observatory Boulder, CO
Outreach Volunteer August 2017 - Present

Host observing nights utilizing the observatory's two 20" Cassegrain telescopes.

Volunteer for the annual Astronomy Day event at the observatory, which hosts over 1,000 local K-12 students.

Astropals Boulder, CO
Co-Founder & Board Member August 2018 - August 2020

Co-founder and active member of the CU Boulder chapter.

Fiske Planetarium Boulder, CO
Fiske Oversight Committee Member August 2017 - August 2020

Advise the committee on strategies to increase the volume of planetarium visitors, upgrade existing hardware, and conduct outreach projects.

CU Cafe Boulder, CO
Outreach Director August 2017 - May 2018

Sought collaborative opportunities with organizations on campus that shared this vision.

American Meteorological Society National
Member November 2015 - November 2017

Attended annual conferences showcasing pioneering research in the meteorological research community.

Boulder Astronomy and Space Society Boulder, CO
Member October 2014 - October 2017

Attended monthly lectures delivered by astronomers, astrophysicists, space industry experts.

Connected with local astronomers to view the night sky from the Sommers-Bausch Observatory in Boulder, CO.

The Planetary Society International
Member April 2014 - April 2017

Received the quarterly magazine, "The Planetary Report", which offers astronomical updates from leading engineers and scientists in the field of planetary science.

Advocated for additional funding from Congress to fund NASA's planetary science budget and promote a global network of planetary astronomers.

Association of Lunar and Planetary Observers National
Member February 2014 - February 2017

Received the quarterly publication, "The Journal", which serves as a medium for advancing astronomical work performed by professional and amateur astronomers.

Gained insight on telescope functioning and development.

Analyzed various solar system bodies and associated phenomena in detailed published reports.

NASA Night Sky Network/ Astronomical League National
Member December 2013 - December 2016

Participated in sharing the science and technology of NASAs missions to the public.

Received the quarterly newsletter, The Reflector, which elucidates current astronomical discoveries.

Atlanta Astronomy Club Atlanta, GA
Member December 2013 - December 2015

Attended monthly lectures provided by researchers in the field and participated in dark sky observing events to view neighboring constellations, planetary events, and varying celestial phenomena.

Ryerson Astronomical Society (The University of Chicago) Chicago, IL
Vice-President September 2012 - June 2013

Assisted in running weekly meetings, planning quarterly trips, and securing guest speakers.

Dome Engineer March 2012 - June 2013

Maintained the functionality and integrity of the dome on the Ryerson rooftop observatory.

Society for Physics Students (The University of Chicago) Chicago, IL
Outreach Officer March 2012 - June 2013

Networked with physical science organizations on campus to coordinate collaborative events, acquire guest speakers, and recruit new members.

AWARDS & GRANTS

Astrophysical Research Consortium/Sloan Digital Sky Survey Collaboration

Early Career Astronomer Travel Award: $1,200. March 2020

CU Boulder Department of Astrophysical and Planetary Sciences

Travel Grant: $1,000. April 2020

CU Boulder United Government of Graduate Students

Travel Grant: $300. February 2020

Astrophysical Research Consortium/Sloan Digital Sky Survey Collaboration

Early Career Astronomer Travel Award: $1,200. February 2019

Odyssey Scholarship (The University of Chicago) October 2008 - June 2013

PRESENTATIONS, PODCASTS, & PUBLICATIONS

Presentation: "Supernovae Distributions in Spiral Arms ", The University of Colorado Boulder, September 24, 2020.

Podcast Host: Featured Speaker - Will Holsclaw, "Black Marble: Exploring the Earth's Dark Side", Fiske Planetarium, September 17, 2020.

Publication: "Active Galactic Bulbs: Tracking Glowing Quasars", James Negus, Astrobites, September 9, 2020.

Publication: "The Impact of Polar Ice on Our Planet's Evolution", James Negus, Science Buffs, July 28, 2020.

Publication: "Faint Jewels: Discovering The Brilliance of Dwarf Galaxies", James Negus, Astrobites, July 27, 2020.

Podcast: "Ep 56: The Fowl Ward", Buffs Talk Science, June 16, 2020.

Presentation: "The Physics of the Coronal Line Region for Galaxies in MaNGA", SDSS-IV/ SDSS-V Collaboration Meeting, June 22, 2020.

Podcast: "Ep 1: Supermassive Black Holes and Where to Find Them", Fiske Planetarium - A View From Earth, June 21, 2020.

Publication: "The Physics of the Coronal Line Region for Galaxies in MaNGA", James Negus, Julie Comerford, and Francisco Müller-Sánchez, ApJ, in prep.

Presentation: "Re-Envisioning The Colorado Scale Model Solar System", ComSciCon20, June 11, 2020.

Publication: "Remnant Tales: Uncovering the Link Between Type Ia Supernova Ejecta and Planetary Nebulae", James Negus, Astrobites, May 14, 2020.

Publication: "Can Nuclear Star Clusters Help Trace Galactic Evolution?", James Negus, Mercury Magazine, Winter 2020.

Publication: "Galactic Outflows: A Stellar Matter?", James Negus, Astrobites, March 4, 2020.

Publication: "Uncovering a Cosmic Matter Reservoir", James Negus, Astrobites, February 3, 2020.

Presentation: "The Future of NASA and Space Exploration", King Adult Day Enrichment Program for Multiple Sclerosis Patients, Westminster, CO, January 31, 2020.

Presentation (Master's Defense: High Pass): "The Physics of the Coronal Line Region for Galaxies in MaNGA", The University of Colorado Boulder, October 16, 2019.

Publication: "Are Supermassive Black Holes Galactic Regulators?", James Negus, Mercury Magazine, Summer 2019.

Publication: "A Catalog of 406 AGNs In MaNGA: A Connection Between Radio-Mode AGN and Star Formation Quenching", Julia M. Comerford, James Negus, Francisco Müller-Sánchez, Michael Eracleous, Thaisa Storchi-Bergmann, R. Scott Barrows, Rebecca Nevin, Namrata Roy, and Aaron Stemo, ApJ, 2019.

Presentation: "Topics in Astronomy", Brookdale Senior Living, Boulder, CO, August 15, 2019.

Presentation: "Black Holes!", King Adult Day Enrichment Program for Multiple Sclerosis Patients, Westminster, CO, May 3, 2019.

Presentation: "Discovering AGN in MaNGA Through Coronal Line Observations", SDSS-IV/ MaNGA Collaboration Meeting, University of Oxford, April 1, 2019.

Presentation: "Radiation Hydrodynamics Models of the Inner Rim in Protoplanetary Disks", The University of Colorado Boulder, March 6, 2019.

Presentation: "Tackling Galactic and Black Hole Coevolution", Speak Easy: A Science Communication Workshop for Researchers, The University of Colorado Boulder, February 24, 2019.

Publication: "Ten-Hundred Word Challenge", James Negus, Science Buffs, February 4, 2019.

Publication:"The Mysteries of Space: Supernovas Explained", James Negus, Enslow Publishing, New York, NY, 2018.

Presentation: "Tracing AGN in MaNGA Using Coronal Line Observations", 232nd American Astronomical Society Conference, Denver, CO, June 4 - 6, 2018.

Publication: "The Mysteries of Space: Black Holes Explained", James Negus, Enslow Publishing, New York, NY, 2018.

Presentation: "Accretion Flow", The University of Colorado Boulder, May 6, 2018.

Presentation: "The Local Group", The University of Colorado Boulder, March 9, 2018.

Presentation: "Photospheric Fine Structure: an Observational Challenge", The University of Colorado Boulder, November 2, 2017.

Presentation: "Lightning in the Venusian Atmosphere", The University of Colorado Boulder, November 16, 2017.

Presentation: "The Solar Cycle", The University of Colorado Boulder, September 7, 2017.

Publication: "A New Narrow Beam, Multi-Frequency Scanning Radiometer and Its Application to In-Flight Icing Detection", D. Serke, J. Negus, R. Ware, K. Reed, L. Blanchette, and P. Kennedy, Atmospheric Research, 2016.

Abstract: "Icing Characterization Based on In-Situ Aircraft and Remote Sensing Platform Observations", R. Ware, D. Berchoff, E. Campos, R. Carpenter, N. Cimini, J. Fisher, M. Freer, I. Gultepe, J. Henrie, P. Holbrook, M. Klein, G. Kok, S. McLaughlin, M. Murakami, J. Negus, S. Nesbitt, M. Nelson, S. Parkinson, K. Reed, L. Sankey, D. Serke, M. Sharkey, S. Tessendorf, R. Stone, and B. Williams, AMS, 2017.

Abstract: "Integrated Wind and Thermodynamic Profiling for High-Impact Nowcasting", R. Baxter, J. Bhate, L. Blanchette, D. Berchoff, C. B. Clements, B. Demoz, P. Drewniak, M. D. Eilts, J. M. Freedman, D. M. Holland, K. R. Knupp, E. Lau, S. A. McLaughlin, J. Negus, M. Nelson, G. Pandithurai, R. Parmentier, M. Rajeevan, K. Reed, P. Roller, N. Sette, L. Thobois, S. Vanderburg, P. Wiker, and T. Wilfong, AMS, 2017.

Abstract: "Boundary Layer Thermodynamic and Wind Observations for Improved Fog and Marine Layer Modeling and Forecasting", R. Ware, L. Blanchette, D. Berchoff, W. Callahan, C. Clements, P. Croft, M. Eilts, P. Flatau, I. Gultepe, R. Hipschman, D. Holland, J. Kleissl, B. Koch, S. McLaughlin, M. Nelson, J. Negus, E. Osler, R. Parmentier, K. Reed, P. Roller, N. Sette, L. Thobois, S. Vandenburg, Y. Xie, and J. Zack, AMS, 2016.

Presentation: James Negus, "Transit Timing: Exoplanet Discovery", The University of Chicago, June 3, 2013.

Presentation: "Automatic Predictions of Solar Flares Using a Neural Network", Laboratory for Atmospheric and Space Physics, Boulder, CO, August 1, 2012.

Presentation: "Gamma Cross Sections", The University of Chicago, October 29, 2012.

SKILLS & TRAINING

Formally trained to conduct remote observations at the Apache Point Observatory.

Proficient in Python.

Proficient in French.

Broad interest in all physical science domains.