Suraj Poudel

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RESEARCH INTERESTS:

Observational Extragalactic Astronomy, Galaxy Formation and Evolution, Quasar Spectroscopy, Quasar/GRB Absorption Line Systems, Chemical Enrichment and Physics of the Interstellar, Intergalactic, and Circumgalactic Medium, Star Formation History, High-redshift Galaxies, Cosmic Reionization, Active Galactic Nuclei, Cosmology

EDUCATION:

Ph.D. in Physics 2020
University of South Carolina, USA
Thesis: "Cosmic metal evolution during the first $\sim$ 1 billion years after the big bang using damped/sub-damped Lyman-alpha absorbers."
Advisor: Dr. Varsha Kulkarni

M.Sc. in Physics 2007 - 2010
Tribhuvan University, Nepal
Thesis: "Effect of Kerr parameter on rotation curve of nearby galaxies."
Advisor: Dr. Udayraj Khanal

B.Sc. in Mathematics & Physics 2003 - 2007
Tribhuvan University, Nepal

RESEARCH EXPERIENCE:

- High-resolution and medium-resolution spectroscopy at optical, UV, and NIR wavelengths

- Observing proposal preparation for HST COS/STIS, Magellan MIKE, VLT X-shooter, Gemini GRACES, and LBT PEPSI (including target selection and observational strategy determination, exposure time calculations, experimental design)

- Spectroscopic measurements of continuum and absorption lines in quasar spectra

- CLOUDY photoionization modeling

- MCMC simulations of nucleosynthesis models using EMCEE software package

- Assistance in research supervision of high school, undergraduate, and beginning graduate students

TEACHING EXPERIENCE:

Teaching Assistant, University of South Carolina, Columbia 2013 - 2016
- Primary instructor for general physics laboratory courses, introducing students to the laboratory exercises, supervising lab sessions, grading lab reports, and assigning final grades.

Lecturer of Physics, Nepal College of Information Technology, Kathmandu 2010 - 2013
- Prepare and deliver lectures in college level general physics and laboratory courses.

Science Lab Instructor, Rato Bangala School, Kathmandu 2006 - 2007
- Laboratory setup and implementation for Cambridge A-Level physics; equipment selection and purchasing.

OBSERVING EXPERIENCE:

MIKE spectrograph on Magellan Telescope (6.5 m) (7 Nights)
Las Campanas Observatory, Chile 2016 - 2017

Remote assistance for observing run on LBT PEPSI (2 Nights)
2018 - 2019

SUCCESSFUL OBSERVING PROPOSALS:

Hubble Space Telescope

Co-I (COS): The Baryonic Content of Galaxies Mapped by MaNGA and Gas Flows Around Them, 2020

Co-I (COS): What Governs the Physics of the Warm-hot Circumgalactic Medium, 2020

Large Binocular Telescope

Co-I (PEPSI): Element Abundances and Gas Kinematics in Gas-rich Galaxies at z > 4.5, 2019

Co-I (PEPSI): Element Abundances and Gas Kinematics in Gas-rich Galaxies at z > 4, 2018

Magellan Telescope

Co-I (MIKE): Reaching back to the First Billion Years of Cosmic Chemical Evolution with Damped Lyman-alpha Absorbers at z> 4.5, 2017

Co-I (MIKE): The Rise of the Metals during the Cosmic Dawn: Element Abundances in Gas-rich Galaxies at z$\sim$ 5, 2016

TECHNICAL SKILLS:

Programming: Python, IDL
Astronomy software: IRAF, DS9, specp, VPFIT, linetools, emcee
Operating systems: OS X, Linux, Windows
Other: HTML, CSS, LaTeX

PUBLICATIONS:

1. Metal-enriched Galaxies in the First One Billion Years: Evidence of a Smooth Metallicity Evolution at z$\sim$5, **Poudel S.**, Kulkarni V. P., Cashman F. H., Frye B., Péroux C., Rahmani H., Quiret S. 2019, MNRAS, 491, 1008

2. Early Metal Enrichment of Gas-rich Galaxies at z$\sim$5, **Poudel S.**, Kulkarni V. P., Morrison S., Péroux C., Som D., Rahmani H., Quiret S. 2018, MNRAS, 473, 3559

3. Molecules and metals in the distant universe: Magellan MIKE observations of gas-rich galaxies at $2 < z < 3$, **Poudel et al. 2020**, submitted to MNRAS

TALKS & POSTERS:

Poster: Evolution of Chemical Elements During the Cosmic Dawn Using Gas-rich Galaxies, **Discover USC**, University of South Carolina	April 2019
Talk: First $\sim$1 Billion Years of Cosmic Metal Evolution Using Damped/sub-Damped Lyman-alpha Absorbers, **Meeting of Astronomers in South Carolina**, Clemson University	March 2019
Talk: Abundance measurements of Damped Lyman-alpha Absorbers (DLAs) at z$\sim$5, **Meeting of Astronomers in South Carolina**, Francis Marion University	March 2018
Talk: Element abundance measurements in gas-rich galaxies at z$\sim$ 5, **231st Meeting of the American Astronomical Society**, Washington DC	January 2018
Poster: Early metal enrichment of gas-rich galaxies at z$\sim$5, **Lifecycle of Metals Throughout the Universe: Celebrating 50 Years of UV Astronomy**, Space Telescope Science Institute, Baltimore	February 2017
Talk: Early metal enrichment of gas-rich galaxies at z$\sim$5, **Meeting of Astronomers in South Carolina**, Furman University	March 2017
Poster: Reaching back to the first 1 billion years of cosmic chemical evolution: Magellan Mike observations of high-redshift damped Lyman-alpha absorbers, **Meeting of Astronomers in South Carolina**, South Carolina State University (SCSU)	April 2016
Poster: Effect of Kerr parameter on the rotation curve of nearby galaxies, **Accretion and Outflow in Black Hole Systems**, Kathmandu, Nepal	October 2010

OUTREACH & EDUCATIONAL ACTIVITIES:

Volunteering at Melton Observatory, University of South Carolina during public viewing nights (helped with setting up 16", 14", 10" telescopes)	Summer 2019 - Present
Served as a judge during 63rd Region II Science & Engineering Fair at University of South Carolina, Columbia	March 2019
Led paper discussions in weekly astronomy journal club meetings at University of South Carolina, Columbia	2014 - Present
Volunteered at "Distinguished Lecture Series in Physics and Astronomy" on several occasions at University of South Carolina, Columbia	2017 - 2018
Volunteered during the South Carolina State Museum (SCSM) Astronomy day	April 2018
Conducted eclipse viewing using a Celestron 8" telescope during August 2017 total solar eclipse at University of South Carolina, Columbia	August 2017
STARLAB planetarium show on multiple occasions at Forest Lake Elementary School, Columbia, SC	2015 - Present

PROFESSIONAL MEMBERSHIPS:

American Astronomical Society (AAS)

REFERENCES:

Prof. Varsha P. Kulkarni
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712 Main Street, Columbia, SC 29208, USA
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Dr. Céline Péroux
European Southern Observatory
Karl-Schwarzschild-Strasse 2, 85748 Garching bei Munchen, Germany
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Dr. Steven Rodney
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