Suraj Poudel, PhD

Institute of Physics
Pontifical Catholic University of Valpraiso (PUCV)
Av. Universidad 330, Curauma, Valparaíso, Chile
Email: suraj.poudel@pucv.cl
Website: https://suraj-poudel.github.io

RESEARCH INTERESTS:

Extragalactic Astronomy, Galaxy Formation and Evolution, Quasar Absorption Line Systems, Gravitational Arc-tomography, High-redshift Galaxies, Cosmic Reionization, Active Galactic Nuclei, Star Formation, Cosmology

EDUCATION:

Ph.D. in Physics 2013 - 2020
University of South Carolina, Columbia, 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 P. 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

EMPLOYMENT:

Postdoctoral Researcher, Pontifical Catholic University of Valpraiso (PUCV), Chile	2020 - present
Research Assistant, University of South Carolina (USC), Columbia, USA	2014 - 2020
Teaching Assistant, University of South Carolina (USC), Columbia, USA	2013- 2015
Assistant Professor, Nepal College of Information Technology, Kathmandu, Nepal	2010-2013

RESEARCH EXPERIENCE:

High-resolution and Medium-resolution Spectroscopy at Optical, UV, and NIR Wavelengths

Integral Field Spectroscopy (IFS)

Gravitational Arc-tomography

Spectroscopic Data Reduction

Observing Proposal Preparation for HST COS/STIS, Magellan MIKE, VLT X-shooter, Gemini GRACES, LBT PEPSI, VLT MUSE

Spectroscopic Measurements of Absorption Lines Both in the Spectra of the Quasars and Gravitational arcs

CLOUDY Photoionization Modeling

MCMC Simulations of the Nucleosynthetic Models

MENTORING/ADVISING EXPERIENCE:

Undergraduate Research Projects Guided

Hugo Cortes, University of Chile, Santiago, Chile (2021-present)

Joshua Rapoport, University of South Carolina, Columbia, USA (2018)

Graduate Thesis Guided

Amar Raj Ghimire, Tribhuvan University, Nepal (2020-present)

Yamuna Rana, Tribhuvan University, Nepal (2020-present)

OBSERVING EXPERIENCE:

Magellan Clay (6.5 m), MIKE Remote observing	(2 Nights) September 2021
Magellan Baade (6.5 m), MagE Remote observing	(2 Nights) June 2021
Magellan Clay (6.5 m), MIKE Remote observing	(2 Nights) May 2021
Large Binocular (LBT) (8.4 m), PEPSI Remote assistance	(2 Nights) 2018 - 2019
Magellan Clay (6.5 m), MIKE Las Campanas Observatory, Chile	(7 Nights) 2016 - 2017

SUCCESSFUL OBSERVING PROPOSALS:

Hubble Space Telescope

Co-I (COS): The Baryonic Content of Galaxies Mapped by MaNGA and Gas Flows Around Them, HST Proposal 16242, 2020

Co-I (COS): What Governs the Physics of the Warm-hot Circumgalactic Medium? HST Proposal 16288, 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

PI (MIKE): Probing the First $\sim$ 1 Gyr of Cosmic Chemical Enrichment History Using Gas-rich Quasar Absorbers (II), CN2021B-57

PI (MIKE): Probing the First $\sim$ 1 Gyr of Cosmic Chemical Enrichment History Using Gas-rich Quasar Absorbers (I) , CN2021A-20

Co-I (MagE): Resolving the spatial and kinematic structure of the z$\sim$1 CGM with Magellan/MagE, CN2021A, 2021

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
Operating systems: OS X, Linux
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. Metals and a search for molecules in the distant universe: Magellan MIKE observations of sub-DLAs at $2 < z < 3$, **Poudel S.**, Kulkarni V.P., Som D., Péroux C. 2021, MNRAS, 504, 731

4. Super-damped Lyman-alpha absorbers at $z \sim 2$: constraints on chemical compositions and physical conditions, **Poudel S.**, Som D., Kulkarni V.P., Morrison S. et al. 2021, to be submitted to ApJ

5. Telltale signs of metal recycling in the circumgalactic medium of a $z \sim 0.77$ galaxy, Nicolas T., Lopez S., Ledoux C., (including **Poudel S.**) et al. 2021, submitted to MNRAS

TALKS & POSTERS:

Talk: *Association of Nepali Physicists in America (ANPA) Conference*, Virtual	July 2021
Talk: *Arctomo USA-Chile Joint Meeting*, Virtual	January 2021
Talk: *Arctomo Regular Meetings*, Virtual	September 2020
Poster: *Discover USC*, University of South Carolina, Columbia, USA	April 2019
Talk: *Meeting of Astronomers in South Carolina*, Clemson University, USA	March 2019
Talk: *Meeting of Astronomers in South Carolina*, Francis Marion University, USA	March 2018
Talk: *231st Meeting of the American Astronomical Society*, Washington DC, USA	January 2018
Poster: *Lifecycle of Metals Throughout the Universe: Celebrating 50 Years of UV Astronomy*, STScI, Baltimore, USA	February 2017
Talk: *Astrophysics Class*, University of South Carolina, Columbia, USA	April 2017
Talk: *Meeting of Astronomers in South Carolina*, Furman University, USA	March 2017
Poster: *Gas on Top of Quasars*, University of Pittsburgh, USA	April 2016
Poster: *Meeting of Astronomers in South Carolina*, South Carolina State University, USA	April 2016
Talk: *Graduate Seminar*, University of South Carolina, USA	October 2013
Poster: *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
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 - 2020
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 - 2020

PROFESSIONAL MEMBERSHIPS:

American Astronomical Society (AAS)

Chilean Astronomy Society (SOCHIAS)

Nepal Physical Society (NPS)

REFERENCES:

Dr. Nicolas Tejos
Instituto de Física
Pontificia Universidad Católica de Valparaíso
Av. Universidad 330, Curauma
Valparaíso, Chile
Email: nicolas.tejos@pucv.cl
Phone: +56 (32) 2274900

Dr. Varsha P. Kulkarni
Department of Physics & Astronomy
University of South Carolina
712 Main Street, Columbia, SC 29208, USA
Email: kulkarni@sc.edu

Dr. Céline Péroux
European Southern Observatory
Karl-Schwarzschild-Strasse 2, 85748 Garching bei Munchen, Germany
Email: celine.peroux@gmail.com

Dr. Steven Rodney
Department of Physics & Astronomy
University of South Carolina
712 Main Street, Columbia, SC 29208, USA
Email: srodney@sc.edu

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