Niraj D. Pant

Department of Physics
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EDUCATION

Ph.D., Physics, The Catholic University of America, Washington, DC expected May 2019
GPA 3.83
M.S., Physics, The Catholic University of America, Washington, DC May 2016
B.A., Physics and Mathematics, Whittier College, Whittier, CA May 2007
Summa Cum Laude, GPA 3.97 (overall), 4.0 (Physics major), 4.0 (Math major)
Dean's List, all semesters

FIELDS OF SPECIALIZATION

Astrophysics

RESEARCH EXPERIENCE

Solar Physics Research Assistant
Space Weather Center, The Catholic University of America 2017- Present
Ongoing work.
Studying prominences and CMEs.

Astrophysics Research Assistant
Department of Physics, The Catholic University of America 2016- 2017
Using software packages CASA and Python, performed imaging and data analysis on ALMA telescope data for galaxies with redshifts from 2 to 5.
Calculated the gas mass fraction in redshift 4 and 5 galaxies.
Performed flux measurements and completeness tests to determine the confidence level for a source being a real detection.

Summer Astrophysics Intern
NASA Goddard Space Flight Center Summer 2015
Using IRAF (Image Reduction and Analysis Facility), studied Optical Spectroscopy of blazar TXS 1100+122.
Searched for correlation between the line in the spectrum and the gamma-rays as observed by FERMI-LAT telescope.

Astrophysics Research Assistant
Department of Physics and Astronomy, Whittier College 2004 - 2008
Using software packages such as IDL, AIPS and DIFMAP, calibrated data from interferometers, constructed radio images and spectral index maps of quasars, calculated brightness temperatures and speeds of plasma blobs in quasars.
Analyzed data from VLA, VLBA and VSOP telescopes using AIPS software.
Performed model fits on plasma components using DIFMAP and DIFWRAP softwares.
Found out one of the brightest plasma component at at least a tera Kelvin.

TEACHING EXPERIENCE

Physics Teaching Assistant

Department of Physics, The Catholic University of America

- University Physics I, Spring 2015
  - Conducted discussion sections, graded quizzes, midterms and finals.
  - Received outstanding feedback from students.
- Introductory Electricity Lab, Spring 2015
  - Using computer interface, introduced basic AC and DC circuits and the use of basic electrical instruments.
  - Examined some electro-magnetic effects.
  - Examined basic lens and diffraction principles.
  - Received outstanding feedback from students.
- University Physics II, Introductory Electricity Lab, Fall 2015
- University Physics I, Introductory Electricity Lab, Spring 2015
- University Physics II, Fall 2014
- Introductory Mechanics Lab, Fall 2014
  - Using computer interface, supervised labs to illustrate the basic principles of mechanics.
  - Received outstanding evaluations from students.
- University Physics I, Introductory Electricity Lab, Spring 2014
- University of Physics II, Introductory Electricity Lab, Fall 2013

Physics Teaching Assistant

Department of Physics and Astronomy, Whittier College

- Introductory Kinematics and Mechanics, Fall 2004, Fall 2006
- Introductory Electricity and Magnetism, Spring 2005
- College Writing Seminar, Fall 2005
- Introductory Optics and Modern Physics, Fall 2005

Physics and Math Tutor

Center for Academic Success, Whittier College, Fall 2005 - Spring 2007

- Clarified concepts, addressed course difficulties, and helped students become independent learners. Helped over 100 students succeed in their classes.

AWARDS AND HONORS

NRAO Student Observing Support Award, 2016-2017
Teaching Assistantship, The Catholic University of America, 2013 – 2016
Pyle Award for Outstanding Graduate in Mathematics, Whittier College, 2007
Outstanding Student Award in Physics and Astronomy, Whittier College, 2006
Poet Leadership Award for College Leadership Achievement, Whittier College, 2006
Helen Spicer Private Scholarship 2006 – 2007
John Greenleaf Whittier Scholarship, Whittier College 2003 – 2007
International Student Scholarship, Whittier College 2003 - 2007

CONFERENCE PRESENTATIONS

"The Interstellar Gas Fraction Over Cosmic Time," Poster Presentation, Indian Wells 2016 and CUA Research Day 2017

"Optical Spectroscopy of the Blazar TXS 1100+122," Poster Presentation, NASA Intern Poster Session, Goddard Space Flight Center, 2015

"A Complete Set of VSOP Observations of 3C 279," Poster Presentation, Japan 2007 Southern California Conference for Undergraduate Research, Occidental College, 2006

LEADERSHIP EXPERIENCE

President, Indus Valley Association, The Catholic University of America, 2015- Present

Vice President, Indus Valley Association, The Catholic University of America, 2014-2015

President, Sigma Pi Sigma, the Physics Honor Society, Whittier College, 2006-2007

President, Society of Physics Students, Whittier College, 2005 – 2006

Orientation Week Leader, Whittier College, 2004 - 2005

COMPUTER SKILLS & LANGUAGES

Computer Skills: Python, IDL, CASA, IRAF, PyRAF, Maple, Mathematica, Lab View, AIPS, DIFMAP, LaTex, MS Office

Languages: Nepali (native), English (fluent), Hindi (fluent)

REFERENCES

John Philip (Chair)
Catholic University of America
Department of Physics
200 Hannan Hall
(202) 319-5319
philip@cua.edu

Glenn Piner (Chair)
Whittier College
Department of Physics
Science and Learning Center
204
(562) 464-4556
gpiner@whittier.edu

Abhijit Sarkar
Catholic University of America
Department of Physics
211 Hannan Hall
(202) 319-6740
sarkar@cua.edu

PUBLICATIONS

"The Jets of TeV Blazars at Higher Resolution: 43 GHz and Polametric VLBA Observations from 2005- 2009," B. Glenn Piner, Niraj Pant, and Philip G. Edwards, 2010 *Astrophysical Journal,* 723, 1150

"A Complete Set of VSOP Observations of 3C279," Pant, N.D.; Piner, B. G.; Edwards, P. G.; Hirabayshi, H.; Wehrle, A. E.; Unwin, S.C.; 2009, Approaching, Micro-Arcsecond Resolution with VSOP-2: Astrophysics and Technologies ASP Conference Series, Vol. 402, proceedings of the conference held 3-7 December, 2007, at ISAS/JAXA, Sagamihara, Kanagawa, Japan. Edited by Yoshiaki Hagiwara, Ed Fomalont, Masato Tsuboi, and Yasuhiro Murata., p. 213

"Significant Limb Brightening in the Inner Parsec of Markarian 501," B. Glenn Piner, Niraj Pant, and Kaj Wiik, 2009, *Astrophysical Journal Letters*, 690, L31

"The Parsec-Scale Jets of the TeV Blazars H 1426+428, 1ES 1959+650, and PKS 2135-304: 2001-2004," B. Glenn Piner, Niraj Pant, and Philip G. Edwards, 2008, *Astrophysical Journal*, 678, 64

"New VLBA Observations of the Parsec-Scale Structures Of the TeV Blazars 1ES 1426+428, 1ES 1959+650, And PKS 2155-304," B. Glenn Piner, Niraj Pant, and Philip G. Edwards, 2006, American Astronomical Society, HEAD meeting #9, #7.43; *Bulletin of the American Astronomical Society*, Vol. 38, p.356