Raj Kumar Pradhan

Independent Researcher |Astro/physics | teacher
Amrit Campus, TU, 44600 - Thamel, KTM.

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Curriculum Vitae

Research Interests

Galactic dynamics, galaxy formation and evolution, dark matter, stellar streams, AGN, Multi-Messenger, and gamma-ray bursts

Education

2014 – 2018 M.Sc. Physics (Elective Subjects: Astrophysics and Computational Physics)
Tribhuvan University, Central Department of Physics (CDP), Kathmandu, Nepal
Dissertation title: ***"The Age and Kinematic Distributions of the Milky Way Stellar Halo"***
Supervisors: Dr. Prajwal Raj Kafle and Assoc. Prof. Dr. Ajay Kumar Jha

2009 – 2013 B.Sc. Physics
Tri-Chandra College, Ghantaghar, Kathmandu, Nepal
(Physics, Statistics and Mathematics; Major – Physics)

Refereed Journal Publications – Co-author

1. P. R. Kafle, S. Sharma, A. S. G. Robotham, **R. K. Pradhan** , M. Guglielmo, L. J. M. Davies, and S. P. Driver "Galactic googly: the rotation-metallicity bias in the inner stellar halo of the Milky Way", *MNRAS*, **470**, 2959–2971, 2017.
2. Khalil UrRehman, Abid Ali Khan, M. Y. Malik, and **R. K. Pradhan**, "Combined effects of Joule heating and chemical reaction on non-Newtonian fluid in double stratified medium: A numerical study," *Results in Physics*, **7**, 3487-3496, 2017.

Publication Statistics (Google Scholar)

Refereed publications: 2
Citations: 27
h-index: 2
i10-index: 2

Teaching and Research

- (Dec 2019 –) Supervision of undergraduate students: 1.Anjan Sigdel 2. Bashudev Bhandari 3. Prajwal Poudyal 4. Prekshya Mishra 5. Sabina Gautum 6. Sanjita Nepal 7. Ukesh Karki
  —Research projects on Galactic halo, disk and Sagittarius stream, and galactic rotation curve using Gaia, GALAH... at Tri-Chandra College, TU and using Supercomputer facilities provided by Kathmandu University.

Feb 9, 2020 – **Physics Teacher (9hrs/week)** at Amrit Campus, Tribhuvan University, Nepal. Teaching: Space Science for BSc 3rd yr students and Lab Supervisor.

Jan 2020 – **Visiting Faculty** for BE (Lab Supervisor) at Nepal College of Information Technology, Pokhara University, Kathmandu

National Activities

(2017 -) **Research Coordinator** at Pokhara Astronomical Society (PAS)

Aug – Oct 2018 : Physics Teacher at Olympia College, Babarmahal, Nepal
Taught Optics (Physics) for both XI & XII grade students

Awards and Grants

2016
- Master Research Support (2016/2017), University Grant Commission, Nepal (Amount: NPR. 50,000 ($ 437))
- Master Thesis Scholarship (2016/2017), the Ministry of Science and Technology of the Government of Nepal (Amount: NPR. 20,000 ($ 175): 1$ = 114.430 NPR)

2008 Student Awards
- Mahatma Gandhi Scholarship, 2007/08, Government of India

Software Skills
- Advanced: Python (Numpy, Scipy), Matplotlib, LaTeX, Moderate: scikit-learn, Fortran, TOPCAT and HTML Software packages: Astropy, galpy, emcee, corner and etc. and SQL (Intermediate).

Program Experience

7 June - 26 July, 2020 **Main Organizer**
– : **Virtual Workshop: Scientific Data Analysis Workshop I & II** – This program is targeted to enhance Scientific Data Analysis capabilities of Undergraduates, Postgraduates and PhD students or candidates and faculties in Nepal. This program highlights some useful modern days of statistical and data analysis tools used in scientific research.

22 Apr 2018 **Program Coordinator**
– *Organized*: **AstroFest Nepal 2018** on the occasion of **Global Astronomy Month (GAM)** at CDP, Tribhuvan University, Nepal Grant: NPR. 40,000 ($350)
(This program was the first time ever happened in Nepal.)

10-12 Jan 2017 Instructor and Organizer
– Presented and Organized the Python Scientific Programming Workshop
CDP, Tribhuvan University, Nepal

Invited Talk

15 May 2020 Speaker on the 4th Lecture Series via Webinar
- The stellar halo: Age and Dynamic at PAS via ZOOM.

9 Jun 2018 Feature Speaker
- Given a talk on the topic of **"Introduction to Radio Astronomy"**, at Liverpool college, Nepal.

Outreach Articles
- "A Mystery of Higgs Boson", Annual Symmetry Magazine, CDP, Tribhuvan University, Nepal, Vol. XI, (2017)
- "Einstein Quantum Debate to Black Hole Entropy", Annual Symmetry Magazine, CDP, Tribhuvan University, Nepal, Vol. X (2015).

Conference Participation

- **16-24 Apr 2020** • Anticipated: participating and contributing a poster on Dynamics of the MW Stellar halo at Growing black holes: accretion and mergers, KTM, Nepal. This program has postoned for next year (2021) due to COVID-19 pandemic.
- 16-21 Oct 2016 • Shining from the hard of darkness; The jet accretion and hole hole, Nepal
- 29-31 Mar 2016 • The Seventh National Conference on Science and Technology, Nepal
- 9-14 Nov 2015 • 14^{th} Regional Conference on Mathematical Physics, Quaid-i-Azam University, Islamabad, Pakistan - with full funding

School Scientific Workshop, School, and Training

Summer/Winter School

- *attended school*: 1^{st} Kathmandu Astrophysics School-2016 (KAS16)
  Kathmandu, Nepal 24-28 Oct 2016
- *attended school*: High Energy Physics Winter School by ICTP Physics Without Frontiers
  Tribhuvan University, Nepal 2-6 Jan 2018
- *attended school*: First Nepal Winter School in AI
  (Overview of state-of-the-art research in ML and AI, Adv. Deep Learning, Bayesian inference) 20–30 Dec 2018

Workshop, Training & Seminar

- attended at: A Virtual Workshop: AI4Science Kickoff Workshop Organized by ELLIS Society, University of Amsterdam 8 July 2020
- attended at **SITARE UK Workshop 2019 (with full funding), University of Southampton, UK.**
  Project title: *"Searching for transients in INTEGRAL light curves – making a machine learning training set"* with Prof. T. Bird and V. Lepingwell.
  10-22 March 2019
- **attended at SITARE: Advanced workshop on Astrophysics**
  ICUAA, Pune, India, with full funding 10-16 Jan 2019
  Presenting poster: *Review of Abbott et al. (2017) paper: First Observation of Merging Binary Neutron Stars with Gravitational Wave and Light.*
- attended and volunteered at **SITARE: Introductory workshop on Astrophysics for Nepal**
  CDP, Tribhuvan University, Nepal 13-15 Jun 2018
- attended at "Workshop cum School on Astronomy & Space Science", held at the Nagarkot National Observatory, Nepal. Jun 9-10, 2018
- attended at "A Workshop on Scientific Programming with Python"
  Nepal
  Instructor: Dr. Prajwal R. Kafle 29 Apr to 5 May 2016
- attended at "Training Program on Computational Physics", (IEEE, ICTP)
  Nepal 14-15 May 2016
- attended at Physics Without Frontiers masterclass (1 Day)
  Organizer: ICTP/CERN Mar 2016
  Venue: Kathmandu

Non-Credit Course

21 hours – Research Methodology 6 Nov – 22 Dec 2017

CDP, Tribhuvan University, Nepal

- lecture given by Prof. Subodh R Shenoy, Tata Institute of Fundamental Research (TIFR), India.

Interests

Painting, Pencil Sketch, Reading, Hiking, Chess

References

Binil Aryal, PhD
Professor and Head
CDP, Tribhuvan University, Nepal
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Prajwal Raj Kafle, PhD (Supervisor)
Adjunct Lecturer
The University of Western Australia, Perth, Australia
Phone: (+61 8) 6488 7203
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Ajay Kumar Jha, PhD (Supervisor)
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Last updated: July 11, 2020

Personal Details

Nationality : Nepali
Date of Birth : March 1992
Gender : Male