europass Curriculum vitae

PERSONAL INFORMATION

Rafia Sarwar

House No. 827-L, Street 39, Block-C, PWD Housing Society, Islamabad, Pakistan, 44000 Islamabad (Pakistan)
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rafu2010@gmail.com
https://2010rafia.github.io/rafia.github.io/

Sex Female | Date of birth 30 Nov 1993 | Nationality Pakistan

STUDIES APPLIED FOR

As an early-career astronomer, I am seeking a PhD position in the field of Gravitational-Wave Astrophysics and Multi-Messenger Astronomy.

EDUCATION AND TRAINING

Sep 2016–Aug 2019

Master of Science in ASTRONOMY and ASTROPHYSICS

Institute of Space Technology (IST), Islamabad (Pakistan)

THESIS:
Event Rates of extreme mass-ratio inspirals (EMRIs) and intermediate mass-ratio inspirals (IMRIs) in Milky Way galaxy
WORK IN PROGRESS:

- Detecting Blackhole Binaries with LISA.
- Detection and parameter estimation of EMRIs in Milky Way Galaxy.

RESEARCH INTERESTS:

- Blackhole Physics
- Gravitational Waves: Inspirals and Primordial Sources
- Methods of Data Synthesis: Bayesian Data Analysis using Advanced Markov Chain Monte Carlo Methods
- Astrophysical Dynamics: Galactic Centers and Globular Clusters
- Detector: Laser Interferometer Space Antenna (LISA)
- Testifying General Relativity, Probing Astrodynamics and Cosmography

Sep 2011–Mar 2016

Bachelor of Science in Physics

COMSATS Institute of Information Technology (CIIT), Islamabad (Pakistan)

THESIS:
Dark Matter, its Detection and Possible Candidates
RESEARCH INTERESTS:

- Dark Matter: Weakly Interacting Massive Particles (WIMPs)
- Galactic Rotation Curves and Gravitational Lensing
- Candidates of Dark Matter: Weakly Interacting Massive Particles, Massive Compact Halo Objects, Sterile Neutrinos, and Axions
- WIMP Scattering Processes and Detection Principles
- WIMP Trajectory in Solar System Near the Sun
- Detector: DRIFT

PERSONAL SKILLS

Mother tongue(s) Urdu

Foreign language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	

English	C1	B2	B2	B2	B2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages - Self-assessment grid

Communication skills

▪ As an early carrier astronomer, I encourage young people and graduate students to develop important scientific skills through enrichment and engage with the wider community in a practical, enjoyable, and meaningful ways.
▪ I presented my research work in two regional conferences in the fields of Physics and Astronomy that helped me to develop demonstration and presentation skills.

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Independent user	Independent user	Basic user	Basic user	Proficient user

Digital skills - Self-assessment grid

C/C++, ROOT, CORSIKA, R, Python, Anaconda distribution, MATLAB, Mathematica, Scientific Workplace, LaTeX, Windows, LINUX.

ADDITIONAL INFORMATION

Publications

R. Sarwar, A. Ali and S. Sajjad, "**Event Rates of Extreme Mass Ratio Inspirals (EMRIs) and Intermediate Mass Ratio Inspirals (IMRIs) in Milky Way Galaxy**," 2019 Sixth International Conference on Aerospace Science and Engineering (ICASE), Islamabad, Pakistan, 2019, pp. 1-7.
DOI: 10.1109/ICASE48783.2019.9059240

Presentations

▪ Oral Presentation at the Sixth International Conference on Aerospace Science and Engineering (ICASE 2019) organized by the Institute of Space Technology, Islamabad, Pakistan (November 2019).
▪ Speaker at 14th Regional Conference on Mathematical Physics organized by Quaid-i-Azam University (QAU), Islamabad, Pakistan (November 2015).

Conferences

▪ Participation in Two Days Seminar on Pakistan's Collaborations with CERN and SESAME, Pakistan Institute of Nuclear Science and Technology, Islamabad, Pakistan (November 2016).
▪ Participation in 5 th School on LHC Physics, National Center for Physics (NCP), Islamabad, Pakistan (August 2016).
▪ Participation in International Scientific Spring (ISS), National Center for Physics (NCP), Islamabad, Pakistan (March 2016).
▪ Participation in International Symposium on Physics Beyond the Standard Model (ISPBSM), National Cente for Physics (NCP), Islamabad, Pakistan (October 2015).

References

▪ **Dr. Asad Ali**
Associate Professor,
Department of Applied Mathematics & Statistics,
Institute of Space Technology, Islamabad, Pakistan.
Email: asad.ali@ist.edu.pk

▪ **Dr. Anastasios Fragkos**
Assistant Professor,
Geneva Observatory,
The University of Geneva, 1205 Geneva, Switzerland.
Email: anastasios.fragkos@unige.ch

▪ **Dr. Saeeda Sajjad**
Assistant Professor,
Department of Space Science,
Institute of Space Technology, Islamabad, Pakistan.
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