

Anirban Ain

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Current affiliation

Research Scholar in IUCAA

Personal Information

Date of birth : 20-Nov-1988

Nationality : Indian

Gender : Male

Education

- **Master of Science (Physics)**
Indian Institute of Technology, Delhi, India (2009-2011).
- **Bachelor of Science (Physics)**
Visva-Bharati University, Santiniketan, India (2006-2009).

M.Sc. Project

- **“Image Reconstruction for Gravitational Lenses”** under guidance of Dilip Ranganathan, IIT Delhi.

Fellowship

- Qualified for the Council for Scientific and Industrial Research (CSIR) University Grants Commission (UGC), National Eligibility Test (NET), December 2011.

Professional Memberships

- LIGO Scientific Collaboration (since 2012)
- IndIGO consortium (since 2012)

Programming Skills

Matlab, C, Python.

Teaching Assistance

TA of course on General Theory of Relativity, 2012, by Sanjit Mitra in IUCAA for Pune University.

Research Information

PhD Thesis Title : **Sources of Stochastic Gravitational Waves and Efficient Observation with Laser Interferometric Detectors with Laser Interferometric Detectors**

Research : Stochastic gravitational wave background
-Estimating SGWB from anisotropies of local universe
-Improving Pipeline for searches
-Blind All-sky Narrow-band search

Schools, Workshops and Meetings Attended

- Winter School on Astroparticle Physics (WAPP 2009) Bose Institute, Darjeeling, India, December 2009.
- Introductory Summer School on Astronomy and Astrophysics, IUCAA, Pune, India, May 2010.
- BITS-IUCAA Workshop on Gravitational Wave Data Analysis, BITS, Pilani, Goa, India, December 2012.
- ICTS Winter School on Experimental Gravitational Wave Physics, RRCAT, Indore, India, December 2013.
- Astronomy, Cosmology & Fundamental Physics with GWs, CMI, Chennai, India, March 2015.
- Meeting of Indian Association for General Relativity and Gravitation (IAGRG 2015), RRI, Bangalore, India, March 2015.
- LSC-VIRGO Collaboration Meeting, Budapest, Hungary, August 2015.
- International Conference on Gravitation and Cosmology (ICGC 2015), IISER, Mohali, India, December 2015.
- Indo-Korean Gravitational Wave Meeting, IUCAA, Pune, India, January 2016.

Poster Presentations

- “Stochastic Gravitational Wave Background from Clusters of Galaxies”, GWPAW 2013, IUCAA, Pune, India, December 2013.
- “Fast Gravitational Wave Radiometry using Data Folding”, LVC Meeting 2015, Pasadena, California, March 2015.

Presentations

- “Stochastic Gravitational Wave Background from Exoplanets and its Detectability”, IAGRG 2013, RRI, Bangalore, India, March 2015.
- “Fast Mapping of Stochastic Gravitational Wave Background Using Data Folding”, LVC Meeting 2015, Budapest, Hungary, August 2015.
- “Stochastic Gravitational Wave Background: Sources and Searches”, Radboud University, Nijmegen, Netherlands, September 2015.
- “Stochastic Gravitational Wave Background: Sources and Searches”, INFN - Sezione di Pisa, Pisa, Italy, September 2015.
- “Stochastic Gravitational Wave Background: Sources and Searches”, Sapienza University of Rome, Rome, Italy, September 2015.
- “Stochastic Gravitational Wave Background: Sources and Searches”, Albert Einstein Institute, Hannover, Germany, September 2015.
- “Fast Mapping of Stochastic Gravitational Wave Background Using Data Folding”, ICGC 2015, IISER, Mohali, India, December 2015.
- “Fast Mapping of Stochastic Gravitational Wave Background Using Data Folding”, Indo-Korean GW Meeting, IUCAA, Pune, India, January 2016.

Other Activities

- Assisted Rakesh Laxman and Shilpa Kastha for their M.Sc. projects.
- I have been involved with IUCAA’s Science Popularisation Programs. This includes organising quiz competitions, poster presentations, school children’s projects etc.

Publications

Limited Author Papers

- A. Ain, P. Dalvi, and S. Mitra, “Fast gravitational wave radiometry using data folding”, Phys. Rev. D 92 (July, 2015) 022003.
- A. Ain, S. Kastha, and S. Mitra, “Stochastic gravitational wave background from exoplanets”, Phys. Rev. D 91 (June, 2015) 124023.
- E. Thrane, S. Mitra, N. Christensen, V. Mandic, and A. Ain, “All-sky, narrowband, gravitational-wave radiometry with folded data”, Phys. Rev. D 91 (June, 2015) 124012.

Collaboration Papers

12 LIGO Scientific Collaboration publications.

- “First low frequency all-sky search for continuous gravitational wave signals”, arXiv:1510.03621 [astro-ph.IM].
- “A search of the Orion spur for continuous gravitational waves using a ”loosely coherent” algorithm on data from LIGO interferometers”, arXiv:1510.03474 [gr-qc].
- “Searches for continuous gravitational waves from nine young supernova remnants”, Astrophys.J. 813 (2015) 1, 39.
- “Directed search for gravitational waves from Scorpius X-1 with initial LIGO data”, Phys.Rev. D91 (2015) 6, 062008.
- “Advanced LIGO”, Class.Quant.Grav. 32 (2015) 074001.
- “Narrow-band search of continuous gravitational-wave signals from Crab and Vela pulsars in Virgo VSR4 data”, Phys.Rev. D91 (2015) 2, 022004.
- “Improved Upper Limits on the Stochastic Gravitational-Wave Background from 2009?2010 LIGO and Virgo Data”, Phys.Rev.Lett. 113 (2014) 23, 231101.
- “First all-sky search for continuous gravitational waves from unknown sources in binary systems”, Phys.Rev. D90 (2014) 6, 062010.
- “Search for gravitational radiation from intermediate mass black hole binaries in data from the second LIGO-Virgo joint science run”, Phys.Rev. D89 (2014) 12, 122003.
- “Search for gravitational wave ringdowns from perturbed intermediate mass black holes in LIGO-Virgo data from 2005?2010”, Phys.Rev. D89 (2014) 10, 102006.
- “Implementation of an \mathcal{F} -statistic all-sky search for continuous gravitational waves in Virgo VSR1 data”, Class.Quant.Grav. 31 (2014) 165014.
- “The NINJA-2 project: Detecting and characterizing gravitational waveforms modelled using numerical binary black hole simulations”, Class.Quant.Grav. 31 (2014) 115004.