

## **Dr. Arunava Bhadra**

Qualification : M.Sc. (Physics), NET (CSIR), Ph.D.

Area of specialization, Astroparticle Physics, High energy astronomy and Astrophysics, General Relativity

PhD supervised – 8, Ongoing 2

Guided an INSPIRE fellow (DST, Govt. of India) (summer time project.)

Major research Projects : Completed – one (DST-SERB), Ongoing – one (DST-SERB)

Awards etc:

i) National Scholarship (1990-91) (Govt. of India)

ii) CSIR JRF (1992-93)

Served as

i) Member of National organizing Committee of 29<sup>th</sup> International Cosmic Ray Conference, 2005

ii) Member of National organizing Committee of 21<sup>st</sup> International Symposium on Very High Energy Cosmic Ray Interactions - ISVHECRI 2020

iii) Member of Scientific Advisory Committee of 6<sup>th</sup> International winter Workshop on Astroparticle Physics and Winter School, Dec, 2011 organized jointly by Bose Institute (Kolkata) and TIFR (Mumbai)

iii) Member of Scientific Advisory Committee of 8<sup>th</sup> International winter Workshop on Astroparticle Physics and Winter School, Dec, 2013 organized jointly by Bose Institute (Kolkata) and TIFR (Mumbai)

Research Experience: More than twenty eight years

Administrative experience: about eighteen years

Total Research papers in Journal : 66, in proceedings – 35

Selective publications:

1. Implications of a proton blazar inspired model on correlated observations of neutrinos with gamma-ray flaring blazars, Prabir Banik, Arunava Bhadra, Madhurima Pandey, and Debasish Majumdar, Phys. Rev. D, 101, 063024 (2020)

2. Interpreting correlated observations of cosmic rays and gamma-rays from Centaurus A with a proton blazar inspired model, P. Banik, A. Bhadra and A. Bhattacharyya, *Mon. Not. Roy. Astron. Soc.*, 500, 1087 (2020)
3. Describing correlated observations of neutrinos and gamma-ray flares from the blazar TXS 0506 +056 with a proton blazar model, P. Banik and a. Bhadra, *Phys. Rev. D* 99, 103006 (2019)
4. Probing the cosmic ray mass composition in the knee region through TeV secondary particle fluxes from solar surrounding, P Banik, B. Bijay, S.K. Sarkar and A. Bhadra, *Phys. Rev. D*, 95, 06314 (2017)
5. Implications of supernova remnant origin model of galactic cosmic rays on Gamma rays from young supernova remnants, P. Banik and A. Bhadra, *Phys. Rev. D* 95, 123014 (2017)
6. Exact Relativistic Newtonian Representation of Gravitational static Spacetime Geometries Shubhrangshu Ghosh , Tamal Sarkar, Arunava Bhadra *Astrophysical Journal*, 828, 6 (2016).
7. Influences of Dark Energy and dark matter on Gravitational Time Advancement, S. Ghosh and A. Bhadra, *Eur. Phys. J. C*, 10, 494 (2015)
8. Progenitor model of Cosmic Ray knee, B. Bijay and A. Bhadra, *Res. Astron. Astrophys.* 16, 6 (2015)
9. Newtonian analogue of corresponding space-time dynamics of rotating black holes: implication for black hole accretion, Shubhrangshu Ghosh, Tamal Sarkar, Arunava Bhadra, *Monthly Notices of the Royal Astronomical Society*, 445, 4463 (2014)
10. Spectral Lag Features of GRB 060814 from Swift BAT and Suzaku Observations, A. Roychoudhury, S. K. Sarkar, A. Bhadra, *Astrophysical J.*, 782, 105 (2014).
11. Comment on "Impact of a Global Quadratic Potential on Galactic Rotation Curves", Kamal. K. Nandi, Arunava Bhadra, *Phys. Rev. Letts.* **109, 079001 (2012)**
12. Examining the scaling behavior of Delbruck scattering in experimental data, B. Kunwar, A.; Bhadra, and S. K. Sen Gupta, *Phys. Rev. C* **84, 034614 (2011)**
13. Gravitational time advancement and its possible detection. A. Bhadra and K. K. Nandi, *Gen. Rel. Grav* 42, 293 (2010)
- 14 Gravitational deflection of light in the Schwarzschild-de Sitter space-time, Arunava Bhadra, Swarnadeep Biswas, Kabita Sarkar, *Phys. Rev. D* **82, 063003 (2010)**
15. . TeV neutrinos and gamma rays from pulsars, A. Bhadra and R. K. Dey, *Monthly Notices of the Royal Astronomical Society*, 395, 1371 (2009)
16. . Study of low energy hadronic interaction models based on BESS observed cosmic ray proton and antiproton spectra at medium high altitude, Arunava Bhadra, Ghosh, Sanjay. K.; Partha S Joarder, et al., *Phys Rev D* **79, 114027 (2009)**
17. Testing gravity at the second post-Newtonian level through gravitational deflection of particles having mass, A. Bhadra, K. Sarkar and K.K. Nandi, *Phys. Rev. D* 75, 123004 (2007)

18. Comments on Mach's views of relativity of rotational motion, A. Bhadra and S.C. Das, *Am. J. Physics*, 75, 850 (2007)
19. Brans-Dicke theory: Jordan vis-a-vis Einstein Frame, A. Bhadra, K. Sarkar, D. P. Datta and K. K. Nandi, *Mod. Phys. Letts. A* **22**, 367 (2007)
20. Contribution of a nearby pulsar to cosmic rays observed at earth, A. Bhadra, *Astropart. Phys.* **25**, 226 (2006)
21. Strong field gravitational lensing in the Brans-Dicke theory, K. Sarkar and A. Bhadra, *Class.Quant.Grav.***23**, 6101 (2006)
22. Delbruck contribution in the Elastic scattering of 1.115 MeV photons, B. Kunwar, A. Bhadra, S. K. Sen Gupta, J. P. J. Carney, and R. H. Pratt., *Phys. Rev. A* **71**, 032724 (2005)
23. Gravitational Lensing by a changed black hole of string theory, A. Bhadra, *Phys. Rev. D* **68**, 103009 (2003)
24. High Energy Gamma Rays from the 'Single Source' of the Knee, A. Bhadra, *J.Phys. G Nucl. Part. Phys.* **28**, 1 (2002)
25. The NBU Extensive Air Shower telescope for observation of UHE point sources, A. Bhadra, C. Chacrabarti, S.K. Sarkar, B. Ghosh and N. Chaudhuri, *Nucl. Instru. & Methods in Physics Research A* **414**, 233 (1998)

**Major Research Project: DST(India)**

Origin of the knee in the Cosmic Ray Energy Spectrum'. Fund Received: Rs.10,95,840/-  
(Completed in session 2010-2011)

Influence of Dark sector on local dynamics and kinematics, SERB (**DST, India**) Total sanctioned fund - Rs. 1942231/- (Ongoing)