

Curriculum Vitae – Subhra Bhattacharya

Personal Details

Dr. Subhra Bhattacharya

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Phone: 09830403955

Date and place of birth: 21 September 1979, Durgapur, India

Marital status: Married

Work Experience

July 2013 - UGC Asst. Professor, Department of Mathematics, Presidency University
Kolkata.

2012- 2013 Asst. Professor, Department of Mathematics, Narula Institute of Technology,
Agarpara, Kolkata.

2009-2011 Postdoctoral Researcher, (Prof. F. Adler)

Adler's lab, University of Utah, Salt Lake City.

***Nonlinear dynamical systems,
Modeling evolution and dynamics of common cold***

2006-2009 Ph. D in Applied Mathematics (Prof. B. N. Mandal and Dr. Sudeshna Banerjea)
Jadavpur University, Kolkata

Solutions of some integral equations and their applications

Education

2006-2008 Ph.D, Jadavpur University, Kolkata.

2002-2004 M.Sc. Mathematics with 76% average mark, Jadavpur University, Kolkata.

1999-2002 B.Sc. Mathematics (Hons.), 83.5% average marks with distinction, Jadavpur
University, Kolkata.

1999 XII standard (ISC), 86.6%

1997 X standard (ICSE), 91%

Publications in Refereed Journals

1. *Wormhole solutions in Rastall Gravity Theory*
S. Halder, **Subhra Bhattacharya** and S. Chakraborty
Mod. Phys. Lett. A (accepted Jan 14, 2019).

2. *Cosmic evolution with a general Gaussian type scale factor**
S. Chakraborty and **Subhra Bhattacharya**
Int. J. Mod. Phys. D, 27 (2018)1847019-035025.

* Selected for *Honourable Mention* in *Gravity Research Foundation Essay awards 2018*.

3. *Evolving Cosmic Scenario in Modified Chaplygin Gas with Adiabatic Matter Creation*
Subhra Bhattacharya, S. Halder and S. Chakraborty
Ann. Phys. 388 (2018) 443-455.

4. *$f(R)$ gravity solutions for evolving wormholes*
Subhra Bhattacharya and S. Chakraborty
Eur. Phys. J. C 77 (2017) 558-566.

5. *A new interacting two-fluid model and its consequences*
G. S. Sharov, **Subhra Bhattacharya**, S. Pan, R. C. Nunes and S. Chakraborty
Mon. Not. Roy. Astron. Soc. 466, (2017) 3497-3506.

6. *A Model of Emergent Universe in Inhomogeneous Space-Time*
Subhra Bhattacharya and S. Chakraborty
Classical Quant. Grav. 33 (2016) 035013-035019.

7. *An analytic model for interacting dark energy and its observational constraints,*
Supriya Pan, **Subhra Bhattacharya** and S. Chakraborty
Mon. Not. Roy. Astron. Soc. 452, (2015) 3038–3046.

8. *A time since recovery model with varying rates of loss of immunity,*
Subhra Bhattacharya and F. Adler,
Bull. Math. Biol., 74 (2012) 2810-2819.

9. *Numerical solution of an integral equation arising in the problem of a cruciform crack,*
Subhra Bhattacharya and B. N. Mandal,
Int. J. Appl. Math. and Mech. 6 (2010) 70-77.

10. *Numerical solution of some classes of logarithmically singular integral equations,*
Subhra Bhattacharya and B. N. Mandal,
J. Adv. Res. Appl. Math. 2 (2010) 30-38.

11. *Numerical solution of a singular integro-differential equation*,
Subhra Bhattacharya and B. N. Mandal,
Appl. Math. Comput. 195 (2008) 346-350.

12. *Use of Bernstein Polynomials in numerical solution of Volterra integral equations*,
Subhra Bhattacharya and B. N. Mandal,
Appl. Math. Sci. 2 (2008) 1773-1787.

13. *Numerical Solution of two special Fredholm integral equations of mathematical physics*,
Subhra Bhattacharya and B. N. Mandal,
Int. J. Appl. Math. Engng. Sci. 2 (2008), 117-121.

14. *Numerical solutions of some classes of Integral equations using Bernstein polynomials*,
B. N. Mandal and **Subhra Bhattacharya**,
Appl. Math. Comput. 190 (2007) 1707-1716.

Research Interests

- Cosmology, relativity and astrophysics.
- Problems pertaining to wormhole.
- Higher dimensional theory of gravity
- Models on interacting dark matter and dark energy
- Inflationary Cosmology.

Grants, Awards and Scholarships

1. Received *Honourable Mention* for the essay titled "*Cosmic evolution with a general Gaussian type scale factor*" in essay on Gravitation 2018 organised by Gravity Research foundation, USA.

2. Received the Early Career Research Award, 2017 from DST-SERB.
Title: *Investigation of accelerating universe and dark sector interactions*
Duration: 2017-2020, Amount: 21.64 Lacs.

3. Passed the National Eligibility Test (NET) in Mathematical Sciences conducted by the Council of scientific and industrial research (CSIR) for Lectureship in 2005.

4. Obtained National Scholarship based on performance in B. Sc Math. (Hons.) from Government of West Bengal, India in 2002.

5. Passed the intermediate National Mathematics Olympiad contest organized by All India Schools Mathematics Teachers Association in 1998.

Presentations and Invited Lectures

1. *An emergent universe model with Gaussian scale factor (Contributory)*
International Conference on Mathematical Analysis and Applications in Modelling, Jadavpur University, Kolkata, India, Jan, 9-12, 2018.
2. *Wormholes: How Mathematics Blend Reality into Imagination (Invited)*
National workshop on celebrating centenary of Einstein's general relativity-2017: hundred years with Λ , University of Burdwan, Burdwan, India, July 26- Aug 01, 2017.
3. *Dynamical wormholes in $f(R)$ modified theory of gravity (Contributory)*
International Conference on nonlinear dynamics, analysis and optimization, Jadavpur University, Kolkata, India, Dec 9-11, 2015.
4. *Numerical Solution of Love's integral equation using Bernstein polynomials (Contributory)*
National Seminar on generalizations and approximations in mathematics, Visva-Bharati University, Santiniketan, India, March 28-29, 2008.
5. *Numerical solution of a singular integro-differential equation (Contributory)*
National Seminar on mathematics, Jadavpur University, Kolkata, India, March 22-23, 2007.

Workshops/Seminars attended

1. The second national workshop on 'Techniques in applied mathematics', University of Calcutta, Kolkata, India, June 20-28, 2006.
2. The third national workshop on 'Techniques in applied mathematics' University of Calcutta, Kolkata, India, October 10-18, 2006.
3. National workshop on 'Modeling of fluids: Macro-Nano', Indian Institute of Technology, Kharagpur, India, September 20-21, 2007.
4. Instructional workshop on 'wavelet analysis', Benaras Hindu University, Varanasi, India, October 22-November 5, 2007.

Teaching: Courses

July 2013- Teaching applied mathematics to undergraduate mathematics (Hons.) courses and post graduate mathematics courses at Presidency University, Kolkata
Courses taught: Graph Theory, Rigid Dynamics, Game Theory, C Programming, Hydrostatics and Numerical Analysis, Classical Mechanics

(UG courses), Mathematical Methods (Integral Transforms, special Functions, Integral Equations, Generalized Functions), Differential Equations, Advanced Numerical Analysis, Partial Differential Equations (PG courses)

- 2012- 2013** Teaching mathematics to undergraduate engineering and BCA courses at Narula Institute of engineering, Agarpara.
Courses taught: Graph Theory, Differential Equations, Linear Algebra, Automata Theory
- 2006-2008** Teaching assistant in several undergraduate engineering courses at Jadavpur University, Kolkata.
Courses taught: Abstract algebra, Differential equations, Differential Calculus, Complex Analysis, Linear Algebra.
- 2005-2006** Guest Lecturer for undergraduate mathematics (Hons. and pass) courses at Gokhale Memorial College, Kolkata, India.
Courses taught: Abstract algebra, Differential Calculus, Differential equations, Linear Algebra, FORTRAN, Mechanics.

Computer Skills

Programming Environments: FOTRAN 77, 90, C+, Mathematica, Matlab, R.

Number of M.Sc. Project students Mentored since 2013

11

Memberships

1. Reviewer at Mathematical Reviews (American Mathematical Society).