

CV

Dr. Sougata Biswas

PERSONAL
INFORMATION

Full Name: Sougata Biswas
Fathers Name: Late Shyamal Biswas
Mothers Name: Mangali Biswas
Marital Status: Unmarried
Date of Birth: 02/09/1989
Languages: Bengali (Mother Tongue), English, Hindi, Citizenship: Indian

CONTACT
INFORMATION

Department of Mathematics
Siksha Bhavana (Institute of Science)
Visva-Bharati (A Central University & Institution of National Importance)
Santiniketan-731235
West Bengal, India
Email: sougata.biswas@visva-bharati.ac.in
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PROFESSIONAL
EXPERIENCE

- Assistant Professor, Department of Mathematics, Siksha Bhavana (Institute of Science), Visva-Bharati (A Central University and Institution of National Importance), Santiniketan-731235, West Bengal, India. (Period: December 22, 2020- till date).
- Assistant Professor, Department of Mathematics, Gokhale Memorial Girls' College, Kolkata, West Bengal, India. (Period: April 19, 2017-December 21, 2020).
- Teaching Assistant, Department of Mathematics, Indian Institute of Technology Guwahati, Guwahati, Assam, India. (Period: July, 2013- November, 2016).

EDUCATION

- **Doctor of Philosophy (Ph.D), Mathematics, December, 2018.**
Institute: Indian Institute of Technology Guwahati, Guwahati, Assam, India.
Dissertation Title: Some Aspects of Corner Vortices in Separated Flows: A Theoretical and Numerical Investigation.
Advisor: Prof. Jiten Chandra Kalita.
Date of Submission: 20/08/2018
Date of Defense: 10/12/2018
CPI (in Course Work): 8.35
- **Master of Science (M.Sc), Mathematics and Computing, May 2012.**
Indian Institute of Technology Guwahati, Guwahati, Assam, India.
Masters Project: "Fourier Analysis and L^2 -Theory on Euclidean Spaces".
Advisor: Dr. Jitendriya Swain.
CPI: 6.73
- **Bachelor of Science (B.Sc), Mathematics (Honours), June, 2010.**
Krishnagar Government College affiliated to University of Kalyani, West Bengal, India.
Percentage: 71.5

- **Higher Secondary, May, 2007.**
Tehatta High School, West Bengal Council of Higher Secondary Education, West Bengal, India.
Percentage: 79.2
- **Secondary, May, 2005.**
Betai High School, West Bengal Board of Secondary Education, West Bengal, India.
Percentage: 84.38

HONORS AND
AWARDS

- Senior Research Fellowship by MHRD, August 2014 - March 2017.
- Junior Research Fellowship by MHRD, July 2012 - 2014.
- Qualified CSIR NET Examination, Discipline - Mathematics, June 2014.
- Qualified GATE Examination, Discipline - Mathematics, 2011 and 2012.
- Merit-Cum-Means Scholarship by IIT Guwahati, July 2010 - April 2012.
- Qualified Joint Admission Test for M.Sc (JAM) Examination, Discipline - Mathematics, 2010.

RESEARCH
INTERESTS

- *Broad areas of research:* Theoretical & Computational Fluid Dynamics.
- *Specific areas of research:* Topological Fluid Dynamics, Vortex Dynamics (Moffatt Vortices, Corner Vortices, Taylor-Görtler-Like vortices etc.), Numerical Simulation of Incompressible Fluid Flow Problems.
- *Areas of interest:* Structural Bifurcation in Incompressible Fluid Flows, Dynamics of Knotted Vortices.

PUBLICATIONS

- **Sougata Biswas**, Jiten C. Kalita. *Topology of corner vortices in the lid-driven cavity flow: 2D vis a vis 3D*, Archive of Applied Mechanics (Springer) 90(10):2201-2216, 2020.
- **Sougata Biswas**, Jiten C. Kalita. *Moffatt eddies in the driven cavity: a quantification study by an HOC approach*, Computers and Mathematics with Applications (Elsevier), 76(3):471-487, 2018.
- Jiten C. Kalita, **Sougata Biswas**, Swapendu Panda. *Finiteness of corner vortices*. Zeitschrift Für angewandte Mathematik und Physik (Springer), 69 (2): 37 (15 pages), 2018.
- **Sougata Biswas**, Jiten C. Kalita. *Moffatt vortices in the lid-driven cavity flow*. Journal of Physics: Conference Series (IOP Publishing), 759 (1): 012081, 2016.

SCIENTIFIC SERVICE Reviewer For:

- Journal of Physics Communications, IOP Science.
- Materials Research Express, IOP Science.
- American Journal of Physics and Applications, SciencePG.

COURSE TAUGHT

Assistant Professor at Gokhale Memorial Girls College April, 2017- December 2020.

- **Theory Courses:** Ordinary Differential Equation, Partial Differential Equation, Numerical Analysis, Linear Algebra, Real Analysis, Multivariable Calculus, Vector Calculus, Theory of Probability, Analytical Dynamics of A Particle II, C Programming Language, Scientific Computing with SageMath.
- **Lab Courses:** Computer Programming, Scientific Computing with SageMath.

Teaching Assistant at Indian Institute of Technology Guwahati July, 2013 - July, 2016

- **Theory Courses:** Mathematics-I (Linear Algebra and Single Variable calculus), Mathematics-II (Multivariable Calculus and Ordinary Differential Equations), Mathematics-III (Complex Analysis and Partial Differential Equations).
- **Lab Courses:** Scientific Computing, Numerics of Partial Differential Equations.

WORKSHOP,
SEMINAR AND
CONFERENCE
PARTICIPATION

- Participated in *Interdisciplinary Refresher Course on Machine Learning and Data Science* in Online Mode (15-28 Feb 2021), UGC HRDC, Gauhati University, Guwahati-781014, Assam, India.
- Participated in the *State Level Webinar on Leave Rules and Health Schemes For College Teachers In West Bengal* held on 4th October, 2020 organized by PANIHATI MAHAVIDYALAYA, Barasat Road, Sodepur, Kolkata-700110, West Bengal.
- Participated in *Online Faculty Induction Programme-II* held from 21/09/2020 to 29/10/2020 and successfully completed with A+ Grade organized by UNIVERSITY GRANTS COMMISSION HUMAN RESOURCE DEVELOPMENT CENTRE (HRDC), JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD.
- Participated in the *5-Day Faculty Development Programme on Applied Mathematical Skills for Science and Engineering Using Contemporary Tools* organized by Department of Applied Science, School of Natural and Applied Sciences, Maulana Abul Kalam Azad University of Technology, West Bengal, India in association with the Islamic University of Science and Technology, Jammu and Kashmir, India on 14th-18th September, 2020.
- Participated in the *3-day online Workshop and Training Programme entitled Developing Skills through ICT Tools And Techniques* organized by the Internal Quality Assurance Cell (IQAC) of Gokhale Memorial Girls College, Kolkata from 02.07.2020 to 04.07.2020.
- Participated and presented a paper entitled *On the identification of critical points in the 3D lid-driven cavity flow in the National Seminar on Nonlinear and Complex Phenomena (NCP-2020)*, at the main campus of Jadavpur University, Kolkata, India, 18-19 February 2020.
- Participated in the *Workshop on SAGEMATH AND R (under Skill Enhancement Course of Mathematics Honours in CBCS)* organized by Undergraduate Board of Studies in Mathematics, University of Calcutta in collaboration with Department of Mathematics, St. Pauls C. M. College and Surendranath College on 31 January, 2020.
- Participated in the *SWAYAM-NPTEL SPOC Workshop (East Zone)* conducted by Indian Institute of Technology Kharagpur on July 27, 2019.
- Participated in the *SWAYAM-NPTEL SPOC Workshop (East Zone)* conducted by Indian Institute of Technology Kharagpur on February 2, 2019.

- Participated and presented a paper entitled Critical points and dynamical structures in the 3D lid-driven cavity flow in the *National Conference on Advances in Mathematical Sciences*, Gauhati University, Guwahati-781014, Assam, India, December 22-23, 2016.
- Participated in the *Workshop on Mathematical Modelling and its Applications (WMMA-2016)*, NIT Meghalaya, Meghalaya-793003, India, August 19-20,2016.
- Participated in the *GIAN Course on Fluid Vortices: From Vorticity to Differential Geometry*, IIT Madras, Chennai-600036, India, August 1-6, 2016.
- Participated and presented a paper entitled Flow topology in the 3D lid-driven cavity, *Research Conclave*, Student Academic Board, IIT Guwahati, Guwahati, Assam, India, March 18, 2016.
- Participated in the *Elsevier Workshop for Authors*, Gauhati University, Guwahati-781014, Assam, India on March 5, 2016.
- Participated in the *National Seminar on Advances in Mathematical Sciences* to commemorate the 128th birth anniversary of Srinivasa Ramanujan Iyengar, Department of Mathematics, Gauhati University, Guwahati-781014, Assam, India, December 22, 2015.
- Participated and presented a paper entitled Moffatt vortices in the Lid-driven cavity flow in the *XXVII IUPAP Conference on Computational Physics, CCP-2015*, IIT Guwahati, Guwahati, Assam, India, 2-5 December 2015.
- Participated in the *Intel High Performance Computing (HPC) Code Modernization (Parallelization) with OpenMP and MPI Workshop*, IIT Guwahati, Guwahati, Assam, India, August 22, 2015.
- Participated in the *Advanced Instructional School (AIS) on Differential Topology*, North-Eastern Hill University, Meghalaya, India, June 15 - July 4, 2015.
- Delivered a presentation on Romeo and Juliet: A Dynamical Model of Love Affair, *Research Conclave*, Student Academic Board, IIT Guwahati, Guwahati, Assam, India, March 24, 2015.
- Participated in the *National Workshop on GPU Programming and Applications (GPA3-2014)*, IIT Guwahati, Guwahati, Assam, India, September 12-14, 2014.
- Delivered a talk on Introduction to Turbulent Flows in the *Research Scholar Seminar*, Department of Mathematics, IIT Guwahati, Guwahati, Assam, India, February 4, 2014.
- Participated in the *Advanced Workshop on Computational Methods for Integral Equations and Applications(AWCMIEA-2014)*, *National Program on Differential Equations: Theory, Computation and Applications*, IIT Kanpur, Kanpur, Uttar Pradesh, India, January 13-17, 2014.
- Participated in the *Linux Workshop*, IIT Guwahati, Guwahati, Assam, India, November 22, 2013.
- Delivered a presentation on Phragmen-Lindelof Principle, in the *Masters Seminar*, Department of Mathematics, IIT Guwahati, Guwahati, Assam, India, November 2011.
- Participated in the *Research Promotion Workshop on Introduction to Graph and Geometric Algorithms*, IIT Guwahati, Guwahati, Assam, India, October 21-23, 2011.
- *Workshop on Mathematical Modelling and its Applications (WMMA-2016)*, NIT Meghalaya, Meghalaya-793003, India, August 19-20,2016.
- *GIAN Course on Fluid Vortices: From Vorticity to Differential Geometry*, IIT Madras, Chennai-

600036, India, August 1-6, 2016.

- *Elsevier Workshop for Authors*, Gauhati University, Guwahati-781014, Assam, India on March 5, 2016.
- *Intel[®] High Performance Computing (HPC) Code Modernization (Paralleization) with OpenMP and MPI Workshop*, IIT Guwahati, Guwahati, Assam, India, August 22, 2015.
- *Advanced Instructional School (AIS) on Differential Topology*, North-Eastern Hill University, Meghalaya, India, June 15 - July 4, 2015.
- *National Workshop on GPU Programming and Applications (GPA3-2014)*, IIT Guwahati, Guwahati, Assam, India, September 12-14, 2014.
- *Advanced Workshop on Computational Methods for Integral Equations and Applications (AWCMIEA-2014)*, National Program on Differential Equations: Theory, Computation and Applications, IIT Kanpur, Kanpur, Uttar Pradesh, India, January 13-17, 2014.
- *Linux Workshop*, IIT Guwahati, Guwahati, Assam, India, November 22, 2013.
- *Research Promotion Workshop on Introduction to Graph and Geometric Algorithms*, IIT Guwahati, Guwahati, Assam, India, October 21-23, 2011.

RESOURCE PERSON

- Resource Person for the Dr. Vashishtha Narayan Singh memorial workshop on applications of Linear Algebra held at Nalanda College of Engineering, Chandi, Nalanda during the period 17-19 January, 2020.
- Guest Speaker for the NATIONAL MATHEMATICS DAY held at Nalanda College of Engineering, Chandi, Nalanda on December 22, 2020.
- Member of the Organizing Committee of Mathematics in Ancient India organized by Department of Mathematics, Gokhale Memorial Girls College, Kolkata on September 11, 2019.
- Member of the Organizing Committee of One day National Seminar On Contemporary Developments in Mathematics and Mathematical Sciences (CDMMS-2018) jointly organized by Indian Society of Nonlinear Analysts (ISNA), Kolkata and Department of Mathematics, Gokhale Memorial Girls College, Kolkata on May 19, 2018.
- Resource Person for the Intra IIT LATEX Workshop jointly organized by RSF, Mathematics and Student Academic Board, IIT Guwahati, Guwahati, Assam, India, February 18, 2017.
- Resource Person for the Remedial Class of the course: Mathematics-II (Multivariable Calculus and Ordinary Differential Equations) during the period January-April, 2015.

PROFESSIONAL MEMBERSHIP

- American Mathematical Society (September, 2016-March, 2017).
- Society for Industrial and Applied Mathematics (January, 2014-March, 2017).

COMPUTER SKILLS

- Operating Systems: Linux, Windows.
- Languages: C, C++, FORTRAN.
- Applications: Microsoft Word, Excel, Html, LATEX, Matlab, Gnuplot, Tecplot, ANSYS Fluent, SageMath.
- ICT Tools: MOOC, Moodle, OBS Studio, Presentation Tube.

REFEREES

- Dr. Jiten Chandra Kalita (Ph.D Supervisor)
Professor, Department of Mathematics
Indian Institute of Technology Guwahati
Guwahati-781039, Assam, India
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- Dr. Anoop Kumar Dass
Professor, Department of Mechanical Engineering
Indian Institute of Technology Guwahati
Guwahati-781039, Assam, India
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- Dr. G. D. Veerappa Gowda
Professor, TIFR Centre for Applicable Mathematics
Sharada Nagar,Chikkabommasandra, Post bag No. 6503
Behind Yelahanka New town Bus Stand, Bangalore-560065, India
Phone : +91-80-6695-3743, E-mail: gowda@math.tifrbng.res.in
- Dr. Kalpesh Kapoor
Professor, Department of Mathematics
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