

Krishnendu Bhowmik

Assistant Professor

Dept. of Aerospace Engineering & Applied Mechanics (AE&AM)

Indian Institute of Engineering Science and Technology, Shibpur

P.O. Botanic Garden, Howrah - 711103, West Bengal, INDIA

E-mail: krishnendub.aero@faculty.iiests.ac.in, krishnendub@aero.iiests.ac.in



Higher education:

- Pursuing PhD in Engineering at IEST, Shibpur since January, 2016
- MSc (Engineering), Mechanical Engineering, IISc Bengaluru, 2007
- BE, Mechanical Engineering, B.E. College (D.U.) (presently IEST, Shibpur), 2002

Employments:

- Assistant Professor, AE&AM Dept., IEST, Shibpur, since 07/10/2013 to Present
- Technology Specialist, ANSYS Inc., Bengaluru, 18/06/2012 - 04/10/2013
- Aerospace Engineer, ATKINS India Pvt. Ltd., Bengaluru, 02/11/2009 - 15/06/2012
- Mechanical Engineer, Safran Aerospace India Pvt. Ltd., Bengaluru, 30/08/2007 - 27/10/2009

Major courses taught:

- Aerospace Structures, Fracture Mechanics, Engineering Mechanics

Research interests:

- Composite Structures, CNT reinforced Nanocomposites, Mechanical Behaviour of Materials, Finite Element Analysis

Research supervisions: (Completed till July 2021)

• M. Tech. thesis: 8

1. Sayan Roy (Reg. No. 321319018): *Delamination of Double Cantilever Composite Beam using Finite Element Analysis* (2021)
2. Pankaj Chauhan (Reg. No. 321318006): *Elastic Moduli of Defective Multi-Walled Carbon Nanotubes: A Finite Element Study* (2020)
3. Shamim Akhtar (Reg. No. 321317022): *Influence of Defects on Elastic Moduli of Graphene Sheets and Carbon Nanotubes using Finite Element Methods* (2019)
4. Rokeey Kumar (Reg. No. 321317013): *A Finite Element Approach to Estimate the Flexural Rigidity of Hexagonal Honeycomb Sandwich Structures* (2019)
5. Pranav Kumar (Reg. No. 321316021): *Effective Young's Modulus of Wavy SWCNT Reinforced Nanocomposite: A Finite Element Study* (2018)
6. Jishan Ali (Reg. No. 320416028): *Finite Element Analysis of Among-Wind Response of RC Chimneys with Flexible-Base and Control by Liquid Damper* (Jointly Supervised with Prof. Aparna (Dey) Ghosh, Civil Engineering, 2018)
7. Raj Kumar Kalshyan (Reg. No. 321315013): *Finite Element Study of Laminated Composite Plate under In-Plane Concentrated Load* (2017)
8. Tuhin Nandy (Reg. No. 321314022): *Study of Effective Young's Modulus of Composite Materials* (2016)

• B. Tech. thesis: 8

Conference/Workshop/Seminar/Course work organized and attended:

- Participated short-term course on “*Atomistic Modelling of Solids: Theory & Applications*”, Dept. of Mechanical Engineering, IIT Indore, December 21-25, 2020
- Organized two days' workshop as a **coordinator** on VSSC ISRO'S “*FEAST^{SMT} - Finite Element Analysis of Structures FEA Technology*”, AE&AM Dept., IEST, Shibpur, August 01-02, 2019
- Presented a paper entitled “*Evaluation of Directional Strength of SWCNT Reinforced Nanocomposites: A Finite Element Study*”, **ICMPC 2018**, Dept. of Mechanical Engineering, GRIET, Hyderabad, March 16-18, 2018

- Presented a paper entitled “*Prediction of Directional Young's Modulus of Particulate Reinforced MMC using Finite Element Methods*”, **ICMMRE-2017**, Dept. of Mechanical Engineering, SMIT, Sikkim, December 8-10, 2017
- Attended two days’ workshop on “**Biomechanics, Implants and Related Medical Devices**”, AE&AM Dept., IEST, Shibpur, March 14-15, 2017
- Organized two days’ workshop as a **co-coordinator** on “**Astrodynamics and Aerospace Materials**”, AE&AM Dept., IEST, Shibpur, August 10-11, 2016
- Attended two days’ workshop on “**Tribology Frontiers Workshop**” at IEST, Shibpur, August 03-04, 2016.
- Attended two weeks workshop on “**Materials Characterization: Principles and Practices**”, Dept. of Metallurgy and Materials Engineering, IEST, Shibpur, July 25 - August 05, 2016
- Attended one week course on “**Research Methodology**” at IEST, Shibpur in November, 2014.
- Attended five days’ seminar on “**Foundation Skills in Integrated Product Development (FSIPD)**”, NASSCOM, Bengaluru, March 18-22, 2014
- Attended “**RC Aircraft Workshop**”, AE&AM Dept., BESU, Shibpur, 15th - 16th February 2014
- Participated as a **Faculty in charge** on “**58th congress of ISTAM**”, AE&AM Dept., BESU, Shibpur, December 18-21, 2013
- Attended one day “**Workshop on Aeromodelling**”, AE&AM Dept., BESU, Shibpur jointly with The Aeronautical Society of India, Kolkata branch, November 8, 2013

Recent publications:

- A. Banerjee, Md. P. Khan, A. Barui, P. Datta, A. Roy Chowdhury and K. Bhowmik, “*Finite Element Analysis of Influence of Cyclic Strain on Cells Anchored to Substrates with Varying Properties*”, Med Biol Eng Comput (2021); doi: <https://doi.org/10.1007/s11517-021-02453-4> (SCI)
- K. Bhowmik, H. Ambati, N. Khutia and A. Roy Chowdhury, “*Prediction of Elastic Constants of Spiral MWCNT Reinforced Nanocomposites by Finite Element Analysis*”, Recent Advances in Computational and Experimental Mechanics, Vol-II: Select Proceedings of ICRAEM 2020, Chapter 37, Lect. Notes Mech. Eng., Springer Nature (Accepted), 2021
- P. Chauhan and K. Bhowmik, “*Effect of Stone-wales defects on elastic moduli of Multi-walled Carbon Nanotubes using nanoscale continuum modeling*”, Recent Advances in Computational and Experimental Mechanics, Vol-I: Select Proceedings of ICRAEM 2020, Chapter 35, Lect. Notes Mech. Eng., Springer Nature (Accepted), 2021
- K. Bhowmik, S. Akhtar, R. K. Kalshyan, N. Khutia and A. Roy Chowdhury, “*CNT Reinforced Laminated Composite under In-Plane Tensile Loading: A Finite Element Study*”, Materials Science Forum, pp 323-329; Volume 978 (2020); doi: <https://doi.org/10.4028/www.scientific.net/msf.978.323> (Scopus)
- P. Chauhan and K. Bhowmik, “*Estimation of Elastic moduli of defective Multi-walled Carbon Nanotubes by Finite Element Approach*”, 64rd congress of ISTAM, December 09-12, 2019, IIT Bhubaneswar
- S. Roy, R. Kumar and K. Bhowmik, “*A Study on Flexural Rigidity of Hexagonal Honeycomb Sandwich Structures using Finite Element Analysis*”, 64rd congress of ISTAM, December 09-12, 2019, IIT Bhubaneswar
- Md. P. Khan, K. Bhowmik, A. Barui and A. Roy Chowdhury, “*Finite element modelling of cytoskeletal components under varying loads and elastic properties*”, 63rd congress of ISTAM, December 20-23, 2018, Dayananda Sagar University, Bengaluru
- K. Bhowmik, S. Akhtar, N. Khutia and A. Roy Chowdhury, “*Directional Young's Modulus of SWCNT Reinforced Nanocomposite by Finite Element Analysis*”, 1st International Conference on Processing and Characterization of Materials (ICPCM–2018), December 08-10, 2018, NIT Rourkela, Odisha

- S. Datta, N. Dana, S. Bhagat, K. Bhowmik and A. Roy Chowdhury, entitled “*Achieving Desired Modulus by Varying Pore Parameters using Finite Element Analysis*”, International Conference on Recent Innovations & Developments in Mechanical Engineering (IC-RIDME 2018), November 08-10, 2018, NIT Meghalaya, Shillong
- K. Bhowmik, T. Nandy, P. Kumar, N. Khutia and A. Roy Chowdhury, “*Prediction of Directional Young's Modulus of Particulate Reinforced MMC using Finite Element Methods*”, IOP Conf. Ser.: Mater. Sci. Eng. 377 012057 (2018); doi: 10.1088/1757-899X/377/1/012057 (Scopus)
- K. Bhowmik, P. Kumar, N. Khutia and A. Roy Chowdhury, “*Estimation of Effective Directional Strength of Single Walled Wavy CNT Reinforced Nanocomposite*”, IOP Conf. Ser.: Mater. Sci. Eng. 338 012016 (2018); doi: 10.1088/1757-899X/338/1/012016 (Scopus)
- K. Bhowmik, P. Kumar, N. Khutia and A. Roy Chowdhury, “*Evaluation of Directional Strength of SWCNT Reinforced Nanocomposites: A Finite Element Study*”, Materials Today: Proceedings 5 (2018) 20528–20534; doi.org/10.1016/j.matpr.2018.06.430 (Scopus)

Awards/Achievements:

- Best Paper Award for the paper entitled “*Prediction of Directional Young's Modulus of Particulate Reinforced MMC using Finite Element Methods*”, International Conference on Mechanical, Materials and Renewable Energy (ICMMRE 2017), December 08-10, 2017, SMIT, Sikkim
- Best Oral Presentation Award for the paper entitled “*Achieving Desired Modulus by Varying Pore Parameters using Finite Element Analysis*”, International Conference on Recent Innovations & Developments in Mechanical Engineering (IC-RIDME 2018), November 08-10, 2018, NIT Meghalaya, Shillong
- Topper of the Session Award for the paper entitled “*Directional Young's Modulus of SWCNT Reinforced Nanocomposite by Finite Element Analysis*”, 1st International Conference on Processing and Characterization of Materials (ICPCM–2018), December 08-10, 2018, NIT Rourkela, Odisha

Membership of professional bodies:

- Life Member of The Aeronautical Society of India (M.AeSI)

Consultancy Projects Completed:

- “Impact Analysis of Away from Reactor Spent Fuel Facility at KKNPP 1&2”, Development Consultants Private Limited, Kolkata -700091, (2017-2018), Amount: 10 Lakh
- “Fan Vibration Analyses of cooling tower”, Paharpur Cooling Towers Limited, Kolkata -700 027 (2014 -2016), Amount: 0.75 Lakh

Personal Information:

Sex : Male
 Marital Status : Married
 Languages Known : English, Hindi and Bengali
 Nationality : Indian
 Present and Permanent Address : Pannajhil # 3, P.O.- Noapara, Barasat, Dist.- North 24 Parganas, Kolkata-700125, West Bengal, India
 URL: <https://www.iiests.ac.in/IEST/Faculty/aero-krishnendub>