Brief CV

Contact Details

Ujjwal K. Saha, PhD (1996), IIT Bombay

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Professional Experiences

- Professor IIT Guwahati Since February 2012
- Associate Professor IIT Guwahati September 2003 to February 2012
- Assistant Professor IIT Guwahati July 2000 to September 2003
- Lecturer NERIST, Itanagar October 1996 to July 2000

Courses Taught

- Engineering Drawing (UG)
- Fluid Mechanics I & II (UG)
- Thermodynamics (UG)
- Applied Thermodynamics I & II (UG)
- Mechanical Measurements (UG)
- Internal Combustion Engines (UG)
- o Experimental Methods (PG) Shared
- Fluid Mechanics (PG)
- Aerodynamics (PG)
- Gas Turbine Theory (PG)
- Introduction to Aerospace Engineering (UG/PG)
- Rocket Propulsion (UG/PG)
- o Applied Mechanics (UG) @ NERIST
- o Hydraulic Machinery (UG) @ NERIST
- Thermal Turbomachines (UG) @ NERIST

Research Interests

Areas of research interest include, but are not limited to

- Turbomachines (Wind, Hydro)
- Aerodynamics (Bluff Body, Sports)
- Reciprocating I C Engines (Diesel, Dual Fuel)
- Alternative Fuels (Gaseous, Liquid)
- Aerospace Propulsion (Nozzles, Fans/Compressors)
- Aerospace Engineering Education

Supervision of Students

- o PhD = 11 Completed + 6 Ongoing (Graduated PhD students are listed in page 6)
- o MTech = 54 Completed + 4 Ongoing
- o MS(R) = 2 Completed + 2 Ongoing
- BTech = 31 Completed (including 7 from NERIST) + 2 Ongoing

Research Publications

Details of journal/conference publications can be found from Google Scholar Citations.

Selected Journals

- AIAA Journal of Aircraft, 2012
- AIP Journal of Renewable and Sustainable Energy, 2013, 2018, 2021
- Applied Energy, Elsevier, 2014
- Applied Thermal Engineering, Elsevier, 2012, 2016
- ASCE Journal of Energy Engineering, 2014², 2016, 2017, 2018, 2020
- ASME Journal of Energy Resources Technology, 2016, 2018², 2019², 2020²
- ASME Journal of Engineering for Gas Turbines and Power, 2011, 2014, 2015, 2019
- ASME Journal of Solar Energy Engineering, 2019², 2021
- Computers and Structures, Elsevier, 2009
- Current Science, Indian Academy of Sciences, 2017
- Energy, Elsevier, 2011, 2018
- Energy Conversion and Management, Elsevier, 2013², 2014², 2018², 2019, 2020
- Energy Procedia, Elsevier, 2018
- Experimental Thermal and Fluid Science, Elsevier, 1997, 2013
- Fuel, Elsevier, 2018
- International Journal of Ambient Energy, Taylor & Francis, 2020
- International Journal of Exergy, Inderscience, 2012
- International Journal of Heat and Mass Transfer, Elsevier, 2013, 2014
- International Journal of Turbo & Jet Engines, Freund, 1995², 1996, 2005
- Journal of the Energy Institute, Elsevier, 2019
- Journal of Marine Science and Application, Springer, 2013
- Journal of Power Technologies, Institute of Heat Engineering, Poland, 2012
- Journal of The Institution of Engineers (India): Series C, Springer, 2021
- Journal of Wind Engineering & Industrial Aerodynamics, Elsevier, 2008
- Ocean Engineering, Elsevier, 2009
- Proc. IMechE, Part A: Journal of Power and Energy, Sage, 2013²
- Proc. IMechE, Part G: Journal of Aerospace Engineering, Sage, 2008
- Proc. IMechE, Part M: Journal of Engineering for the Maritime Environment, Sage, 2011
- Renewable Energy, Elsevier, 2006, 2008, 2015, 2016, 2018
- Renewable and Sustainable Energy Reviews, Elsevier, 2009, 2013, 2015
- Sadhana Academy Proceedings in Engineering Science, India, 2020, 2021
- Thermal Science and Engineering Progress, Elsevier, 2020
- Wind Engineering, Multi-science, 2006

Selected Conference Proceedings

- ASME 38th International Conference on Ocean, Offshore & Arctic Engineering, Glasgow, Scotland, 2019
- ASME Gas Turbine India Conference, IIT Madras, Chennai, India, 2019²
- ASME 37th International Conference on Ocean, Offshore & Arctic Engineering, Madrid, Spain, 2018
- o ASME Gas Turbine India Conference, Bangalore, India, 2017³
- ASME 11th International Conference on Energy Sustainability, Charlotte, North Carolina, USA, 2017
- ASME Turbo Expo, Charlotte, North Carolina, USA, 2017
- o ASME 35th International Conference on Ocean, Offshore & Arctic Engineering, Busan, South Korea, 2016
- ASME Gas Turbine India Conference, Hyderabad, India, 2015³
- ASME-ATI-UIT Conference on Thermal & Environmental Issues in Energy Systems, Napoli, Italy, 2015
- ASME Gas Turbine India Conference, New Delhi, India, 2014²
- ASME 12th Biennial Conference on Engineering Systems Design & Analysis, Copenhagen, Denmark, 2014²
- ASME Turbo Expo, Dusseldorf, Germany, 2014
- o ASME Gas Turbine India Conference, Bangalore, India, 2013
- ASME International Mechanical Engineering Congress and Exposition, San Diego, USA, 2013
- ASME 11th Biennial Conference on Engineering Systems Design and Analysis, Nantes, France, 2012
- ASME International Mechanical Engineering Congress & Exposition, Colorado, USA, 2011
- o ASME International Mechanical Engineering Congress & Exposition, Vancouver, Canada, 2010
- o 7th International Conference on Flow Dynamics, Sendai, Japan, 2010
- ASME-ATI-UIT Conference on Thermal & Environmental Issues in Energy Systems, Sorrento, Italy, 2010
- ASME Internal Combustion Engine Division Fall Technical Conference, Texas, USA, 2010
- o 2nd International Conference on Mechanical, Industrial & Manufacturing Technologies, Singapore, 2010
- ASME 4th International Conference on Energy Sustainability, Arizona, USA, 2010
- ASME 28th International Conference on Ocean, Offshore & Arctic Engineering, Hawaii, USA, 2009
- ASME Internal Combustion Engine Division Spring Technical Conference, Wisconsin, USA, 2009
- World Renewable Energy Congress IX and Exhibition, Florence, Italy, 2006
- o 16th International Symposium on Air Breathing Engines, Ohio, USA, 2003
- o 7th International Symposium on Fluid Control, Measurement & Visualization, Sorrento, Italy, 2003
- 19th Canadian Congress of Applied Mechanics, Calgary, Canada, 2003²
- 13th International Symposium on Air Breathing Engines, Tennessee, USA, 1997
- ASME Turbo Asia, Jakarta, Indonesia, 1996
- o ASME Cogen Turbo Power, Vienna, Austria, 1995

Research Projects

- APGCL (Guwahati) Sponsored Feasibility Studies of Generating Electric Power using Helical Water Turbine – with V Kulkarni, P Tripathy, and Others, Budget = Rs.27.2 Lakh, 2012-2014.
- CPRI (Bangalore) Sponsored Design of a 25 kWe Pressurized Circulating Fluidized Bed Unit with P Mahanta and P Kalita, Budget = Rs.35.7 Lakh, 2011-2014.
- DRDO (Tezpur) Sponsored Utilization of Bio-waste for Generating Power in Diesel Engines with N Sahoo, Budget = Rs. 9.91 Lakh, 2011-2013.
- ADnENERGY (London) Sponsored Development and Analysis of Twisted Two-bladed, Two-stage Savonius Rotor for Power Generation—with N Sahoo, P Mahanta and D Bhagabati, Budget = Rs. 8.83 Lakh, 2010-2012.
- **KVIC** (Mumbai) Sponsored Setting up of Technical Backup Unit at IIT Guwahati for R & D Interface with Khadi and Village Industries Sector with P Mahanta, R M Punekar, A K Das, A D Sahasrabudhe, S K Kakoty and Others, Budget = Rs.26.7 Lakh, 2003-2008.
- MNRE (New Delhi) Sponsored Design and Development of a High Performance Biogas Digester for the N-E Region of India with P Mahanta and A Dewan, Budget = Rs. 18.9 Lakh, 2002-2005.
- ARDB (New Delhi) Sponsored Computation of Two Dimensional Incompressible Viscous Flow through Cascade with M K Das, Budget = Rs. 4.22 Lakh, 2002-2004.

Consultancy / Course Projects

- APDCL (Guwahati) Sponsored Supply of Technical Manuscripts for a Govt. of Assam Organization, Budget = Rs. 9.10 Lakh, 2017.
- Ministry of Higher Education (Assam) Sponsored Technical Specifications of Two-wheeler Vehicle to the top 1000 Girl Students who Pass the Higher Secondary Examination in 2017 – with V Kulkarni and B Mehta, Budget = NIL, 2017.
- BCPL Sponsored Setting of Confidential Papers for Engineering Non-Executives of a Govt. of India Enterprise, Budget = Rs. 5.40 Lakh, 2013.
- NEEPCO Sponsored Setting of Confidential Manuscripts for Engineers and Officers of a Govt. of India Enterprise, Budget = Rs. 1.90 Lakh, 2013.
- WWF Sponsored Design and Fabrication of a Pedal Operated Biomass Briquetting Machine with P Mahanta and D K Sarma, Budget = Rs. 0.57 Lakh, 2012.
- NERAMAC Sponsored Vetting of a Feasibility Report on Setting-up of Cold Storage Chain with S K
 Kakoty and D K Sarma, Budget = Rs. 0.5 Lakh, 2011.
- OIL-Duliajan Sponsored A Preliminary Project Report on Generation of Electrical Power from Small Quantities of Gas Available in Isolated Pockets of OIL India's Oil Fields – with R Uppaluri, A K Ghosal and Others, Budget = Rs. 4.08 Lakh, 2008.
- o **GIAN-NE** Sponsored Technical Assessment of the Wind Turbine-cum-Water Pump System Developed by M. Hussain with S K Dwivedy, P Mahanta and P Kalita, Budget = Rs. 0.30 Lakh, 2007.
- Dhriti Sponsored Development of an Energy Efficient Machine for Arecanaut Leaf Plate Manufacturing – with P Mahanta and Others, Budget = Rs. 2.5 Lakh, 2007.
- Kirloskar Sponsored Performance Testing of 5 HP Diesel Engine Driven Centrifugal Pumpsets with P Mahanta and A K Dass, Budget = Rs. 0.4 Lakh, 2003.

Curriculum Development Projects

- QIP Sponsored Introduction to Aerospace Engineering 850 slides, 2011-12
- QIP Sponsored Experimental Methods 720 slides, 2007-08
- QIP Sponsored Gas Turbine Theory 650 slides, 2006-07
- QIP Sponsored Internal Combustion Engines –966 slides, 2005-06
- QIP Sponsored Jet Propulsion 900 slides, 2004-05
- IGNOU Sponsored Heat Power Technology 5 chapters, 2004

Short-term Courses Organized

In association with other faculty members

- TEQIP III Sponsored Aerospace Technology: Theory and Practice, 2021
- o QIP Sponsored Aerospace Propulsion for Beginners, 2008
- QIP Sponsored Industrial Applications of Turbomachines, 2007
- QIP Sponsored Fuels & Combustion Technology, 2005
- o QIP Sponsored Energy Conservation Practices, 2004
- o MNRE Sponsored Renewable Energy Applications in NE Region, 2002
- o MNRE Sponsored Renewable Energy Systems, 2001

Reviewer - Journals

Partial List

- ASME Journal of Energy Resources Technology, 2021
- Resources, Environment and Sustainability, Elsevier, 2020
- Wind Engineering, Sage, 2020
- Energy Sources, Part A, Taylor and Francis, 2020
- Engineering Science and Technology, Elsevier, 2019
- Proc. of IMechE, Part C, Journal of Mechanical Engineering Science, UK, Sage, 2019
- ASME Journal of Dynamic Systems, Measurement and Control, 2019²
- Journal of Flow Visualization and Image Processing, Begell House, 2019
- International Journal of Green Energy, Taylor and Francis, 2018
- Fuel Processing Technology, Elsevier, 2018
- Sustainable Energy Technologies and Assessments, Elsevier, 2018, 2019
- Journal of Ocean Engineering & Science, Elsevier, 2017
- International Journal of Fluid Mechanics Research, Begell House, 2017², 2018
- Case Studies in Thermal Engineering, Elsevier, 2017²
- Energy for Sustainable Development, Elsevier, 2017
- Energy & Fuels, ACS Publications, 2016, 2018
- Journal of Wind Engineering & Industrial Aerodynamics, Elsevier, 2016⁵, 2017³
- International Journal of Ambient Energy, Taylor and Francis, 2015, 2017
- International Journal of Aerospace Engineering, Hindawi, 2015
- Ecotoxicology and Environmental Safety, Elsevier, 2015
- Journal of the Energy Institute, Elsevier, 2014, 2015
- Renewable Energy, Elsevier, 2014, 2018
- Industrial and Engineering Chemistry Research, ACS Publications, 2014
- Clean Technologies and Environmental Policies, Springer, 2014
- International Journal of Hydrogen Energy, Elsevier, 2014
- Journal of the Brazilian Society of Mechanical Sciences and Engineering, Springer, 2013
- Renewable and Sustainable Energy Reviews, Elsevier, 2013³, 2014³, 2015, 2017
- ASCE Journal of Energy Engineering, USA, 2013³, 2015, 2019
- Energy Conversion and Management, Elsevier, 2012, 2013, 2014⁴, 2018⁴
- Alternative Energy, Acta Press, Canada, 2012
- ASME Journal of Turbomachinery, USA, 2011, 2014²
- Applied Energy, Elsevier, 2011², 2014²
- Energy, Elsevier, 2010, 2011³, 2012², 2013⁴, 2014⁴, 2015⁵, 2016⁴, 2018
- Fuel, Elsevier, 2009, 2010, 2011, 2015, 2018
- Sadhana Academy Proceedings in Engineering Science, India, 2009, 2013, 2015², 2019
- Journal of Fluids and Structures, Elsevier, 2009
- Ocean Engineering, Elsevier, 2009², 2010², 2011², 2013, 2016
- Journal of the Institution of Engineer (India), Springer, 2008², 2009, 2010², 2011², 2013², 2014³, 2017², 2019
- Proc. of IMechE, Part G, Journal of Aerospace Engineering, UK, Sage, 2008², 2009
- Experimental Thermal and Fluid Science, Elsevier, 2007, 2008, 2011, 2012
- International Journal of Energy Research, John Wiley & Sons, 2007, 2009, 2016, 2018
- International Energy Journal, AIT Bangkok, Thailand, 2007, 2010, 2019
- Proc. of IMechE, Part A, Journal of Power and Energy, UK, Sage, 2007², 2010², 2011, 2016
- Journal of Scientific & Industrial Research, CSIR-NISCAIR, India, 2006, 2013², 2015
- Journal of Indian Institute of Science, Bangalore, India, 2004

Reviewer – Conferences

Partial List

- o ASME Turbo Expo 2021 (in virtual mode), 2021²
- ASME International Mechanical Engineering Congress and Exposition, Portland, OR, USA, 2020
- ASME Gas Turbine India Conference, IIT Madras, Chennai, 2019²
- o 2nd National Aerospace Propulsion Conference, IIT Kharagpur, India, 2018
- ASME International Mechanical Engineering Congress and Exposition, Pittsburgh, USA, 2018
- ASME Gas Turbine India Conference, Bangalore, 2017⁴
- 24th National and 2nd Int. ISHMT-ASTFE Heat and Mass Transfer Conference, Hyderabad, India, 2017
- o 6th International and 43rd National Conference on FMFP, MNNIT Allahabad, India, 2016²
- ASME Turbo Expo 2016, Seoul, South Korea, 2016
- ASME Gas Turbine India Conference, Hyderabad, India, 2015
- 23rd National & 1st International ISHMT-ASTFE HMT Conference, Thiruvananthapuram, 2015
- o 5th International and 41st National Conference on FMFP, IIT Kanpur, India, 2014
- ASME 12th Biennial Conference on Engrg. Systems Design & Analysis, Copenhagen, Denmark, 2014²
- 22nd National & 11th ISHMT-ASME Heat & Mass Transfer Conference, IIT Kharagpur, 2013²
- ASME Gas Turbine India Conference, Bangalore, 2013
- ASME International Mechanical Engineering Congress & Exposition, San Diego, USA, 2013⁴
- o ASME Gas Turbine India Conference, Mumbai, 2012
- International Conference on Energy Resources & Technologies, Howrah, India, 2012³
- o 5th BSME International Conference on Thermal Engineering, Dhaka, 2012²
- 11th Asian International Conference on Fluid Machinery, IIT Madras, 2011
- ASME-JSME-KSME Joint Fluids Engineering Conference, Hamamatsu, Japan, 2011
- 34th National Conference on Fluid Mechanics & Fluid Power, BIT Mesra, Ranchi, India, 2007²

Other Review Work

- Books/Manuscripts Wiley (2015), Springer (2012), McGraw Hill (2010²), Elsevier (2009, 2019)
- Video Lectures NPTEL-II (2011²), CDEEP (2010)
- Text Materials NPTEL-II (2011, 2014)
- R & D Projects CoPT-DRDO (2018, 2020), SERB-DST (2015³, 2016), NRDC (2014)

Department Level Responsibilities

Partial List

- o Secretary DPPC, 2012-2014
- o In-charge I C Engine Lab, 2012–2017
- Secretary DUPC, 2011–2012
- o In-charge Fluid Mechanics Lab, 2010–2012
- Member DUPC, 2009–2011
- Member DPPC, 2003–2008
- In-charge Turbomachinery Lab, 2003–2006
- o MTP Co-ordinator, 2003–2004
- Member Time Table Committee, 2002–2004
- Member Institute Library Committee, 1998–2000 @ NERIST

Institute Level Responsibilities

Partial List

- Member (Senate Nominee) Library Advisory Committee, 2019 2021
- Coordinator Examination Cell, Recruitment of Junior Assistants, IIT Guwahati, 2018
- Member IIT Guwahati Hospital Advisory Board, 2016
- Chairperson Committee for Overall Improvement of IIT Guwahati Hospital, 2015
- Member Institute Academic Disciplinary Committee, 2012–2014
- Convener Institute Comprehensive Medical Insurance Committee, 2012–2013
- Convener Convocation Food & Refreshment Sub-committee, 2012, 2013, 2014
- Organizing Chairman, DRDO SET 2009
- Organizing Vice-Chairman, DRDO SET- 2007, 2008
- Chairman, IIT-JEE 2006
- Vice-Chairman, IIT-JEE 2004, 2005
- Vice Chairman, Gymkhana, 1998–1999 @ NERIST

Coordinating Other Responsibilities

- ISMU (Dhanbad) Entrance Examination 2008
- Assam Judicial Service Examination (Guwahati) 2008
- TISS (Mumbai) National Entrance Test 2008, 2007
- TIFR (Mumbai) PhD Entrance Test 2008, 2007
- KVPY (IISc Bangalore) Aptitude Test 2007, 2006

Conferences / Workshops Related Activities

- Joint Org. Secretary 8th International and 47th National Conference on Fluid Mechanics and Fluid Power, IIT Guwahati (in virtual mode), July 09–11, 2020
- Track Chair ASME Gas Turbine India Conference, IIT Madras, December 5–6, 2019
- Coordinator 4th National Workshop on Research Methodology in Fluid Mechanics, IIT Guwahati, June 22–23, 2019
- Track Chair ASME Gas Turbine India Conference, Bangalore, December 7–8, 2017
- Member & Session Chair Asian Congress on Gas Turbines, IIT Bombay, December 12–14, 2016
- Joint Organizing Secretary International Workshop on Aspects of Fluidized Bed Technology, IIT Guwahati, July 9–10, 2016
- o Member 12th International Conference on Vibration Problems, IIT Guwahati, December 14 17, 2015
- Member 21st International Symposium on Processing and Fabrication of Advanced Materials, IIT Guwahati, December 10–13, 2012
- Treasurer India–UK Summer School on Efficient Fossil Fuel Technologies, IIT Guwahati, July 4–10, 2011
- Member 2nd International Congress on Computational Mechanics and Simulation, IIT Guwahati, December 8–10, 2006
- Joint Secretary 18th National & 7th ISHMT-ASME Heat and Mass Transfer Conference, IIT Guwahati, January 4–6, 2006
- Member National Symposium on Rotor Dynamics, IIT Guwahati, December 15–17, 2003
- Member 47th Congress of Indian Society of Theoretical and Applied Mechanics, IIT Guwahati, December 23–26, 2002

Invited Talks / Lecture Series

Partial List

- Small-scale Wind Turbines: Concepts and Applications (in virtual mode), Trinity College of Engg., Pune, 2021
- Progress of Aeronautics during 20th Century and Beyond (in virtual mode), NIT Mizoram, Aizwal, 2021
- Lift and Drag (in virtual mode), Government Engineering College, Cooch Behar, WB, 2020
- Aviation Turbine Fuels (in virtual mode), National Institute of Technology, Agartala, 2020
- Turbomachinery in Aerospace Vehicles (in virtual mode), National Institute of Engineering, Bangalore, 2020
- Aeronautics for Beginners (One-day Workshop), IIIT Bhagalpur, 2018
- Understanding Aerospace Engineering (One-day Lecture Series), Dibrugarh University, 2018
- Wind Tunnel Aerodynamics, Tezpur University, Tezpur, 2017
- Gas Turbine Propulsion Technology, Assam Engineering College, Guwahati, 2017
- Applied Fluid Mechanics, APDCL Training Institute, Guwahati, 2016
- Wright Brothers' Journey of Invention and the Aerial Age, NIT Silchar, 2015
- 100 Years of Aircraft Flight, National Education Day Lecture, IIT Guwahati, 2014
- History of Aircraft Flight, 16th H P Barua Memorial Lecture, IE (India), Guwahati, 2014
- Wind and Briquetting Machines for Rural Development, NERIST, Itanagar, 2014
- Energy from the Wind, Cotton College, Guwahati, 2003
- Wind Energy, Assam Engineering Institute, Guwahati, 2000

Graduated PhD Students

- o Maryom Dabi, (2020), Assistant Professor, NERIST, Itanagar, Arunachal Pradesh
- o Nur Alom, (2019), Trainee Teacher, NIT Meghalaya, Shillong, Meghalaya
- o Achinta Sarkar (2019), Assistant Professor, KIIT, Bhubaneswar, Odisha
- o Parag K Talukdar (2019), Assistant Professor (TEQIP-III), Jorhat Engineering College, Jorhat, Assam
- o Azd Zayoud (2016), Postdoctoral Fellow, Ghent University, Belgium
- o Bhaskor J Bora (2015), Assistant Professor, Energy Institute, RGIPT, Bangaluru
- Sukanta Roy, (2014), Senior Lecturer and Head, Curtin University, Malaysia
- o Biplab K Debnath, (2013), Assistant Professor, NIT Meghalaya, Shillong, Meghalaya
- o Pankaj Kalita, (2013), Assistant Professor, IIT Guwahati, Guwahati
- o M Eswaran, (2011), Scientist E, IGCAR, Kalpakkam, Tamil Nadu
- o Bhibuti B Sahoo, (2011), Associate Professor, VIT University, Vellore, Tamil Nadu.