DR. TANMAY DUTTA

Assistant Professor
Department of Mining Machinery Engineering
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Research Interests

- Computational Fluid Dynamics
- Vortex Tube Refrigeration and Air Separation
- Flow Analysis of Mineral Processing Equipment
- Blast Furnace Ironmaking
- Geothermal Energy

Educational Qualification

- **PhD**, Indian Institute of Technology Kharagpur, India, 2011. Dissertation Title – Experimental Investigation and CFD Analysis of Energy Separation in Ranque–Hilsch Vortex Tube.
- **Master of Engineering (M.E.)** in Mechanical Engineering, Jadavpur University, Kolkata, India, 2004, securing **82% marks**. Dissertation Title – An Experimental Study on the Fluid Flow in the Grinding Zone of Peripheral Grinding.
- **Bachelor of Engineering (B.E.)** in Mechanical Engineering, Jadavpur University, Kolkata, India, 2002, securing **75% marks**.
- **Higher Secondary (12th Grade, W.B.C.H.S.E Examination)** Krishnath College, Berhampore, India, 1997 securing **81% marks**.
- **Madhyamik (10th Grade, W.B.B.S.E Examination)** Berhampore J. N. Academy, Berhampore, India, 1995 securing **85% marks**.

Work Experience

- Assistant Professor, Department of Mining Machinery Engineering, IIT (ISM) Dhanbad from July 2017 to present.
- Assistant Professor, Mechanical Engineering Department in Tachno India, Kolkata from February 2016 to July 2017
- Manager in Technology Cell, L&T Construction from February 2012 to January 2016.
- Research Associate in the project "Analysis and Development of Conceptual Design Methodologies for Air Collection and Enrichment System of Air Breathing Propulsion – Phase II" sponsored by ISRO through SRIC, IIT Kharagpur, India from October 2011 to January 2012.

- Senior Research Fellow in the project "Large Eddy Simulation of Transonic and Supersonic Cavity Flow Fields" sponsored by AR&DB, DRDO through SRIC, IIT Kharagpur, India from November 2010 to October 2011.
- Senior Research Fellow in the project "Analysis and Development of Conceptual Design Methodologies for Air Collection and Enrichment System of Air Breathing Propulsion" sponsored by ISRO through SRIC, IIT Kharagpur, India from July 2009 to October 2010.
- Postgraduate Trainee Engineer in M/S Allied Centrifugal Pumps Private Limited, Kolkata, India from December 2004 to July 2005.

Computational Platforms

- *Software*: CFD software FLUENT, Ansys Design Modeler, Ansys Meshing, AutoCAD.
- *Programming Language*: C, MATLAB.

Publications

➢ Publications in International Journals

1. **Dutta T.**, Sinhamahapatra K. P., and Bandyopadhyay S. S. **(2013)**, CFD Analysis of Energy Separation in Ranque – Hilsch Vortex Tube at Cryogenic Temperature, ***Journal of Fluids***, 2013, 1-14.
2. **Dutta T.**, Sinhamahapatra K. P., and Bandyopadhyay S. S. **(2011)**, Numerical investigation of gas species and energy separation in the Ranque – Hilsch vortex tube using real gas model, ***International Journal of Refrigeration***, 34, 2118 - 2128.
3. **Dutta T.**, Sinhamahapatra K. P., and Bandyopadhyay S. S. **(2010)**, Comparison of different turbulence models in predicting the temperature separation in a Ranque – Hilsch vortex tube, ***International Journal of Refrigeration***, 33, 783 - 792.
4. Banerjee S., Ghosal S., and **Dutta T. (2008)**, Development of a simple technique for improving the efficacy of fluid flow through the grinding zone, ***Journal of Materials Processing Technology***, 197, 306–313.

➢ Conference Presentations/Publications

1. Kotpalliwar O., Singhal A., **Dutta T.**, Samanta A., Efficiency Analysis of Organic Rankine Cycle, CHEMCON 2018, Chandigarh, India, December **2018** (Accepted).
2. **Dutta T.**, Sinhamahapatra K. P., New Design of a Compact Mixing Chamber of Hot Blast Stove, AISTECH 2017, Nashville, Tennessee, USA, May **2017**.
3. **Dutta T.**, Sinhamahapatra K. P., Bandyopadhyay S. S., Experimental Investigation and CFD analysis of Energy Separation in a Ranque – Hilsch Vortex Tube with Regard to Cold Orifice Diameter, CHEMCON 2010, Chennai, India, December **2010**.
4. **Dutta T.**, Sinhamahapatra K. P., Bandyopadhyay S. S., Parametric Study of Energy Separation in Cryogenic Vortex Tube Using a CFD Model, CHEMCON 2008, Chandigarh, India, December **2008**.

5. **Dutta, T.**, Sinhamahapatra K. P., Bandyopadhyay S.S., CFD Analysis of Energy Separation in a Cryogenic Vortex Tube, Conference on Advances in Space Science and Technology, Kharagpur, India, January **2008**.
6. **Dutta, T.**, Sandilya, P., Bandyopadhyay S.S., CFD Analysis of the Flow Phenomena in a Cryogenic Vortex Tube, CHEMCON 2007, Kolkata, India, December **2007**.
7. **Dutta, T.**, Sandilya, P., and Bandyopadhyay S.S., CFD Analysis of Energy and Phase Separation in a Cryogenic Vortex Tube, International Conference of High Speed Transatmospheric Air & Space Transportation, Hyderabad, India, June **2007**.
8. Ghosh, S., **Dutta, T.**, Sandilya, P., Bandyopadhyay S.S., CFD Analysis of a Cryogenic Vortex Tube Air Separator, CHEMCON 2006, Ankleshwar, India, December **2006**.
9. **Dutta, T.**, Ghosal, S., Banerjee, S., Development of a Simple Technique for Enhancing the Fluid Flow Through the Grinding Zone, AIMTDR Conference 2004, Vellore, India, December **2004**.

Research Guidance

- No. of PhD Students: 1 (Ongoing)
- No. of M. Tech Students: 2 (Ongoing)