Dr. Venugopal Arumuru

Applied Fluids Group

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https://scholar.google.co.in/citations?user=1N1daS8AAAAJ&hl=en

Total number of citations: 338
h-index: 9
i10-index: 9

Research Interest

Fluid-Structure Interaction and unsteady Aero-Hydrodynamics, Turbulence and Flow Control, Heat Transfer augmentation, Bluff Body flows, Acoustics, Fluid Flow Metrology

03/2016–[To]
Assistant Professor, IIT Bhubaneswar, India

09/2014–02/2016

Lead Engineer/Technologist, GE Measurement & Control, India

06/2014–08/2014

Research Associate, National University of Singapore, Singapore

08/2008–06/2010

Design and Development Engineer, Forbes Marshall Pvt. Ltd India

Education

Ph.D.,

Thermal & Fluids, Indian Institute of Technology Bombay, India (2014)

M. Tech,

Energy Science, Indian Institute of Technology Bombay, India (2008)

B. E,

Mechanical, National Institute of Technology Raipur, India (2006)

Award & Recognition

- **INAE Young Engineer Award – 2019**
- **INAE Young Associate - 2019**
- **Distinguished Teaching Award Overall Best Performance 2018-19, IIT Bhubaneswar**
- **Teaching Excellence Award: 2017-18, IIT Bhubaneswar**
- **Young Scientist Award 2017- Venus International Foundation**
- **IIT Bombay Excellence in Thesis Work Award -2015**
- **American Physical Society /DFD Travel Grant – 2013**
- **Department of Science and Technology & CSIR India, Travel Grant (2013)**

Applied Fluids Group

- **Forbes Marshall Fellowship 2006-2008, IIT Bombay (Postgraduate Studies)**
- **Merit-Based Scholarship from S.E.C. Railway, India (2003, 2004 & 2005) for graduate Studies**

Journals

J01. H Gupta, Venugopal A, R Jha. "Industrial Fluid Flow Measurement using Optical Fiber Sensors: A review", **IEEE Senors**, 2021.

J02. **Venugopal A**, J Pasa, SS Samantaray. Experimental visualization of sneezing and efficacy of face masks and shields", **Physics of Fluids** 32 (11), 115129, 2020

J03. **Venugopal, A**., Amit Agrawal, and S. V. Prabhu Experimental investigations on flow over a circular cylinder placed in a circular pipe" **Physics of Fluids** 32 (9), 095122, 2020

J04. Mukesh K, **Venugopal A**, Jet deflection by two side-by-side arranged hydrofoils pitching in a quiescent fluid", **AIP Advances** 10 (10), 105128, 2020

J05. **Venugopal A** , A Kodam, R Jha, "Bi-Directional Interferometric Flowmeter with Linear Sensitivity and Large Dynamic Range" **IEEE Transactions on Instrumentation and Measurement,** 2020

J06. H Yadav, A Venugopal, SV PRABHU, A Agrawal, "Study on connecting tube dynamics for transient pressure measurement" **Sadhana** 45 (1), 2020

J07. **Venugopal A**, Jitendra Narayan Dash, Dhrubaraj Dora, and Rajan Jha. "Vortex shedding optical Flowmeter based on Photonic Crystal Fiber." **Scientific Reports** 9, no. 1 (2019): 8313.

J08. Liladhar J, **Venugopal A**, "Numerical Investigation on Heat Transfer and Flow Characteristics of a Confined Circular Cylinder with Slit." Journal of Thermal Science and Engineering Applications: **ASME**, 2019

J09. Choudhary, Kushal Prasad, **Venugopal A**, and Yogesh G. Bhumkar. "Numerical simulation of beam drift effect in ultrasonic flow-meter." **Measurement** 146 (2019): 705-717.

J10. **Venugopal, A**., Amit Agrawal, and S. V. Prabhu. "On the Linearity, Turndown Ratio and Shape of the Bluff Body for Vortex Flowmeter" **Measurement** 137 (2019),

477-483.

J11. Venugopal, A., Amit Agrawal, and S. V. Prabhu. “Vortex Dynamics of Trapezoidal bluff body placed inside a pipe.” **Journal of Turbulence**, 19 (2018), 1-24.

J12. Kapil M, **Venugopal, A**., Amit Agrawal, and S. V. Prabhu. “Improvement in the performance of the vortex flowmeter using contraction cone” **Measurement** 111 (2017), 316-332.

J13. Venugopal, A., Amit Agrawal, and S. V. Prabhu. "Investigations on turbulent flow around bluff bodies placed in a circular pipe.” **Journal of Fluids Engineering, ASME** - 2017, 139(4), 041204.

J14. Lavish, O., **Venugopal, A.,** Amit Agrawal and S. V. Prabhu “Vortex shedding from a circular cylinder with a parallel slit. **Journal of Visualization**, 2016, 1-13.

J15. Venugopal, A., Amit Agrawal, and S. V. Prabhu. “Spatial correlations in the wake of a circular cylinder and a normal plate Placed inside a pipe." **Journal of Fluids and Structures**, 54 (2015), 536-547.

J16. Venugopal, A., Amit Agrawal, and S. V. Prabhu. "Vortex cross-correlation flowmeter with improved turndown ratio.” **Review of Scientific Instruments** 85.6 (2014): 066109.

J17. **Venugopal, A.,** Amit Agrawal, and S. V. Prabhu. “Performance evaluation of piezoelectric and differential pressure sensor for vortex flowmeters.” **Measurement** 50 (2014): 10-18.

J18. Borkar, Kishor, **Venugopal, A.,** and S. V. Prabhu. "Study on the design and performance of a Bi-directional cone flowmeter.” **Flow Measurement and Instrumentation**. 34 (2013): 151-159

J19. Borkar, Kishor, **Venugopal, A,** and S. V. Prabhu. "Pressure measurement technique and installation effects on the performance of wafer cone design**." Flow Measurement and Instrumentation** 30 (2013): 52-59.

J20. Venugopal, A., Amit Agrawal, and S. V. Prabhu. "Frequency detection in vortex flowmeter for low Reynolds number using piezoelectric sensor and installation

effects." **Sensors and Actuators A: Physical** 184, (2012): 78-85.

J21. Venugopal, A., Amit Agrawal, and S. V. Prabhu. "Review on vortex flowmeter-Designer perspective." **Sensors and Actuators A: Physical** 170.1 (2011): 8-23.

J22. Venugopal, A., Amit Agrawal, and S. V. Prabhu. "Influence of blockage and shape of a bluff body on the performance of vortex flowmeter with wall pressure measurement." **Measurement** 44.5 (2011): 954-964.

J23. Venugopal, A., Amit Agrawal, and S. V. Prabhu. "Influence of blockage and upstream disturbances on the performance of a vortex flowmeter with a trapezoidal bluff body." **Measurement** 43.4 (2010): 603-616.

Patents

1. **A system and a method for multipoint sensing** - Indian Patent Application No TEMP E-1/59888/2020/KOL
2. **A Model Interferometer Based System to Improve Performance of Vortex Flow meter-** Indian Patent Application No E-5/320/2019/KOL.
3. **A system and method for steering and focusing of momentum jets -** Indian Patent Application No 201731035216.
4. **Vortex Flowmeter for Measuring a fluid flow rate** – Indian Patent Application No. 2459/MUM/2015
5. **Vortex Cross-correlation Flowmeter** – Indian Patent Application No. 1763/MUM/2013 **(Granted)**
6. **A system and a method thereof for self-cleaning of Solar PV Panels** - Indian Patent Application Submitted

Projects

Sponsored

1. **Design of Multipath Ultrasonic flow meter** – IIT Bhubaneswar (10 lakhs)
2. **Computational Analysis of Acoustic Beam Steering** – AR&DB (17.6 lakhs)

3. **Design & Development of Synthetic Jet**- SERB: ECR (32.1 lakhs)
4. **Centre for Wing Design** – FIST, DST (265 lakhs)
5. **Design and Development of Hybrid "PCM-Synthetic Jet" based Heat Sink for Electronic Cooling** – DST (38 lakhs)
6. **Dsign and Development of Jet Pumps** – Aeronuatical Development Agency (13 lakhs)

Consultancy

1. Design of Miniature Ultrasonic Sensor - GE (2.95 lakhs)
2. Design of Coriolis Mass Flowmeter – Honeywell (13 lakh)
3. Design and Development of Flow Measurement Solution – Honeywell (21.5 lakh)