

Dr. Yedu Krishna



PhD Institution and Year : PhD in Aerospace Engineering, University of New South Wales, Canberra, Australia. (2015).
Master of Science in Photonics
Cochin University of Science and Technology. (2010)

Date of Joining IISc : 1 February 2016

Area(s) of Research : Optical diagnosis of high speed flows and combustion, tunable diode laser absorption spectroscopy (TDLAS), optical and laser-based sensors, photonics.

Name of the Post-doctoral Fellowship : National postdoctoral fellow (2017)

Laboratory where currently working : Laboratory for Hypersonic and Shock wave Research

Department : Department of Aerospace Engineering.

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Topic(s) of Research : Laser-based sensors for diagnosis of high-speed flows.

Research Publications in IISc :

Journal Articles

1. Y. Krishna, and S. O'Byrne, "Tunable Diode Laser Absorption Spectroscopy as a Flow Diagnostic Tool: A Review", Journal of Indian Institute of Science, Vol: 96, No: 1, 2016, Pages 17-28.
2. J. J. Kurtz, M. Aizengendler, Y. Krishna, P. Walsh, and S. O'Byrne, "Rugged, Scramjet Inlet Temperature and Velocity Sensor: Design and Ground Test", AIAA Journal, Vol: 54, No: 2, 2016, Pages 399-407.

3. J. J. Kurtz , M. Aizengendler, Y. Krishna, P. Walsh, and S. O'Byrne, "Subsonic In-flight Temperature and Pressure Measurements Using a Scramjet Inlet Flow Sensor", *AIAA Journal*, Vol: 54, No: 3, 2016, Pages 1007-1013.
4. Y. Krishna, S. O'Byrne, S. Wittig, and J. J. Kurtz, "Numerically Determining Mach Number And Orientation in Hypersonic Inlets Using Absorption Spectroscopy", *Journal of propulsion and power*, Vol: 31, No: 1, 2015, Pages 123-132.
5. Y. Krishna, S. O'Byrne, and J. J. Kurtz, "Baseline Correction For Stray Light In Log-Ratio Diode Laser Absorption Measurements", *Applied Optics*, Vol: 53, No: 19, 2014, Pages 4128-4135.
6. A. Kumar, P. Vaity, Y. Krishna, and R. P. Singh, "Engineering The Size Of Dark Core Of An Optical Vortex", *Optics and Lasers in Engineering*, Vol: 48, No: 3, 2010, Pages 276-281.

Conference Proceedings and Technical Reports

- a. T.K. Boyson, T. P. Kaseman, Y. Krishna, M. Aizengendler, and S. O'Byrne, "Emission Spectroscopy with an Embedded Sensor for the Study of Metallic Contamination in the T-ADFA Free Piston Shock Tunnel", 30th International Symposium on Rarefied Gas Dynamics, 2016 (Accepted)
- b. S. O'Byrne, T. Kaseman, Y. Krishna, S. L. Gai, H. H. Kleine, and A. Neely, "Leading-Edge Separation in Thermal Nonequilibrium Hypersonic Flow: Final Report for AOARD Grant 134013 <13%2040%2013>", Technical report, AFOSR/AOARD Ref. No: AOARD-134013 <13%2040%2013>, 2015.
- c. Y. Krishna, S. L. Sheehe, S. O'Byrne, "A Time-Resolved Temperature Measurement System for Free-Piston Shock Tunnels", Proceedings of the 31st AIAA Aerodynamic Measurement Technology and Ground Testing Conference, AIAA Aviation Forum, Dallas, TX, 22-26 June, 2015.
- d. J. J. Kurtz, M. Aizengendler, Y. Krishna, P. Walsh, and S. O'Byrne, "Flight test of a rugged scramjetinlet temperature and velocity sensor", In Proceedings of the 53rd AIAA Aerospace Sciences Meeting, AIAA Science and Technology Forum, Kissimee, Florida, 5-9 January, 2015.
- e. Y. Krishna, S. O'Byrne, and M. Aizengendler, "Diode-Laser-Based Driver Gas Detector For Hypersonic Shock Tunnels", In Proceedings of the 29th International Symposium on Shock Waves, Madison, Wisconsin, 14-19 July, 2013. (Fully peer-reviewed)
- f. Y. Krishna, M. Aizengendler, J. J. Kurtz, and S. O'Byrne, "Thermal Stability Testing and Line Selection Process of a Laser Absorption Sensor for Scramjet Inlets", Proceedings of the 6th Australian Conference on Laser Diagnostics in Fluid Mechanics and Combustion, Canberra, Australia, 5-7 December, 2011. (Fully peer-reviewed)
- g. Y. Krishna, J. J. Kurtz, C. G. Rodriguez, and S. O'Byrne, " Diode Laser Measurement of Mach Number and Angle of Attack in a Hypersonic Inlet", Proceedings of the 11th Australian Space Science Conference, Canberra, Australia, 26-29 September, 2011. (Fully peer-reviewed)

- h. U. Raghunath, S. Malathi, Y. Krishna, T. Srinivas, and G. Kadambi, " Design of 16 Channel Multiplexer using SOI Ring Resonator Array", Proceedings of the Photonics Global Conference, Singapore, 14-16 December, 2010.
- i. P. C. Ashok, J. James, Y. Krishna, J. V. Chacko, and V. P. N. Nampoori, "Development of Optics Kit for Schools in Developing Countries –International School of Photonics Model", Proceedings of Education and Training in Optics and Photonics - Session 2, North Wales, United Kingdom, 5 July, 2009.
- j. S. O'Byrne, S. Wittig, J. Kurtz, Y. Krishna, C. Rodriguez, M. Aizengendler, and J. Davies, "Diode Laser Sensor For Scramjet Inlets", Technical report, AFOSR/AOARD Ref. No: AOARD-10-4075, 2011.

Other accomplishments and recognition while in IISc :

What information will be useful to post-docs if it is available on the post-doc page on the IISc Website ? List the items.

Publications, research interests, educational qualifications and profile picture would be the best.

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