



Vijaya Rani

Graduate Student

Department of Mechanical and
Aerospace Engineering

BIO:

Mr. Vijaya Rani is currently pursuing a PhD in Mechanical Engineering. This work involves developing an analytical framework for 'combustion instability'. As part of the research work for Masters thesis, an analytical acoustic analysis for 2D Cartesian duct with multiple changes in cross-section and under various boundary conditions and mean flow velocities is developed. He is currently working on developing a consistent approach to solve the combustion instability problem using Modal analysis. As part of this work, acoustically consistent matching and edge conditions have been developed. A wide range of parametric space including, the effect of various velocity profiles, flame shapes, boundary conditions, phase angles and change in the ratio of cross-sectional area, is studied over a wide frequency space: axial, transverse and oblique modes.

This work is expected to result into two journal publications, one in JASA(Journal of Acoustical Society of America) and a Polish journal called Archives of Acoustics.

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He has been awarded Shih graduate student memorial scholarship. He was part of the team that organized the national level tech-fest called DAKSH in India.