PMRF-ISSS Teaching Programme

Prime Minister Research Fellowship students' teaching requirement facilitated by the Institute of Smart Structures and Systems

Module PMRF-ISSS018/2025

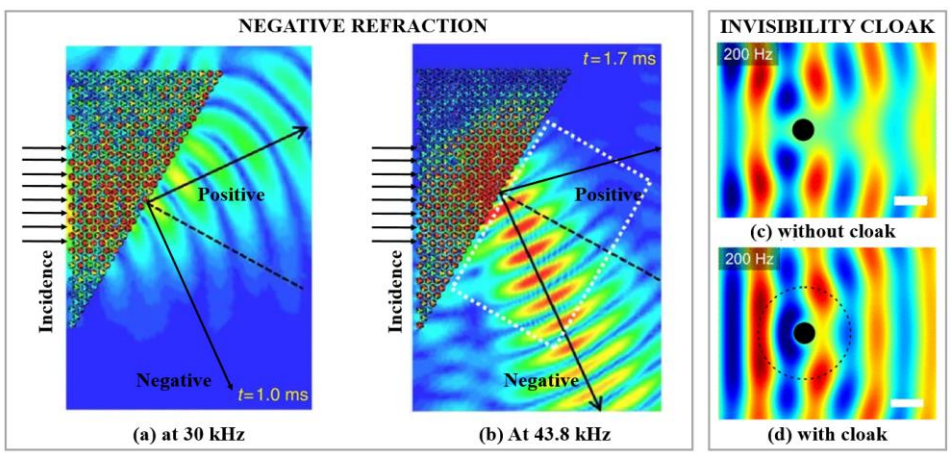
Introduction to Mechanical Metamaterials

Name of the PMRF student

Garigipati Sai Srikanth

Required background of the students taught

Aerospace Engineering, Civil Engineering, Mechanical Engineering with background in Structures



Details of the content of the module

Module 1: Introduction

Static and dynamic metamaterials, wave phenomenon, waves in 1D

Module 2: Standard 1D models

Monomer, dimer, Locally-Resonant (LR), Inertially Amplified (IA) models.

Module 3: Effective Properties

Homogenization, effective mass, effective stiffness, effective refractive index

Module 4: Low-frequency Bandgaps

Normalization, comparative study, challenges, solutions

Module 5: Advanced topics

Topological systems, boundary states: BIC and edge states.

Schedule of the module

Start date: 13/02/2025

End date: 23/03/2025

Tentative timings: Fri/Sat/Sun 1.5 hours each

Total Duration:27 hours

Meeting link : Will be shared later

Link

Contact email ID: garigipatis@iisc.ac.in

Registration link: https://forms.gle/as2m7eH83NWJXW2y5