

Registration Seminar

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Seminar Title	: Analytical and numerical study of acoustic scattering from scatterers having different geometry
Speaker	: Nirlipta Pallabee Samapika ( Rollno : 519id1008)
Supervisor	: Prof. Dibya Prakash Jena
Venue	: CAD Lab, ID Department
Date and Time	: 01 Jul 2022 (5.30 PM)
Abstract	: This report ventures a brief literature survey on acoustic scattering fundamentals however, a vivid study was done on its physical and mathematical concepts, carrying forward with analysis of acoustic properties using various geometry of scatterers. A conventional solution of incident pressure followed by scattering pressure found because of the cylindrical wave is attained for a plane acoustic scattering by a single or an arbitrary configuration of parallel circular cylinders, taking into consideration all possible contributions for the excitation of the single-cylinder or a particular cylinder from the parallel rows of cylinders. The standard analytical approach formally conveys the scattering by the superposition of scattered pressure, the phase difference of the scattering wave, and its interference phenomenon. Phase changes account due to different velocities of sound, which directly involve the frequencies of the sound wave. As frequency rises, the scattering accumulated highly in the forward direction, henceforth the phase difference falls to zero. The solution for the scattering of radiation is found in a linear combination of Bessel and Henkel functions using some specific boundary conditions applied to the surface (finite cylinder) or cross-section (infinite cylinder). An analytical approach is proposed for solving scattering field pressure generated due to an infinitely long single circular cylindrical scatterer and validated with literature.