

ALL ARE WELCOME

M.S. Seminar Talk

Title: **Synthesis and characterisation of telechelic PVA-coated ultrasound contrast agent**

Speaker: **Mr. Akash Waghmare (ME23S030)**

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Date and Time: **22-07-2026 @ 11:00 AM**

Venue: **Online**

Link: **meet.google.com/vzz-yizn-jcd**

Abstract

Ultrasound imaging faces challenges in imaging blood vessels like the coronary arteries due to their deep locations and the similar acoustic properties of blood and blood vessels. This problem can be circumvented by using encapsulated microbubbles, commonly known as Ultrasound Contrast Agents (UCAs). Typical encapsulation materials include polymers, proteins, lipids, or surfactants. Though some of these have been approved by the Food and Drug Administration (FDA) in the USA, the development and characterization of ultrasound contrast agents remain in the research stage. In particular, in India, there is a strong need to promote the indigenous development of stable UCAs. This forms the motivation of the present work. In the present work, polyvinyl alcohol (PVA) is chosen as the encapsulation material due to its well-characterized biocompatibility, surface functionalization, stability, and cost. The physical and acoustic characterization has been performed to develop the indigenous protocol. We observed an average particle size distribution of less than 4 μm in all cases. The attenuation experiments showed greater attenuation in shaken samples than in non-shaken samples. We observed around 2.5 dB/cm of attenuation in the samples, which was also varied with the dilution factor. This experimental study will serve as a basis for synthesising biopolymer-coated microbubbles in the future to develop indigenous ultrasound contrast agents for our nation.