Seminar

Institute for Plasma Research

Title : Bubble induced vibration by Liquid Nitrogen (LN2)

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Date : 14th March 2018 (Wednesday)

Time : 04.00 PM

Venue : Seminar Hall, IPR

Abstract :

Cryogenic fluids are always in the boiling modes and inducing the bubble noise continuously. Any process tank or Liquid Nitrogen Cryopump is subjected to the Bubble induced vibrations. The present work is an attempt to theoretically investigate bubble induced vibration and noise with the help of bubble dynamics. If the liquid nitrogen is filled in the circular concentric shell then it makes the investigation more challenging. The departure force on the liquid nitrogen bubble is of the order of 10-5 N, which provides the initial acceleration of ~2g. The bubble moves through the liquid nitrogen and impacts the surface, which produces the vibration and noise. This work will open the new window for the cryogenic fluid usability for the vibration free environment. Hence it is a new emerging area of investigation.

Keywords: Cryopump, Liquid nitrogen, Vibration, Bubble, Noise