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ICTS Skype Seminar

Title : Free and forced oscillations in two-phase interfacial flows
Speaker : Palas Kumar Farsoiya, Indian Institute of Technology, Bombay
Date : Monday, January 14, 2019
Time : 02:00 PM
Venue : Amal Raychaudhuri Meeting Room, ICTS Campus, Bangalore

Abstract : The free interfacial waves have long fascinated researchers. We have extended the linear viscous analysis capillary-gravity waves (Lamb(1892), Chandrasekhar (1961), Prosperetti (1981) etc.) and solve the initial value problem in axisymmetric (Farsoiya et. al. 2017) and azimuthal oscillations (Farsoiya et. al. (in preparation)). The parametrically forced oscillations studied by Michael Faraday (1831) on vibrating elastic solid surfaces had sparked interest in fluid dynamicists. The analysis by Benjamin and Ursell(1954) and later Tuckermann et. al. (1994,1996,2016) for viscous cartesian and spherical geometries. We (Patankar, Farsoiya and Dasgupta. 2018) have studied Faraday waves on the cylindrical interface.

Four analytical test cases viz. Planar and circular Cauchy-Poisson problem along with planar and circular Faraday waves for Euler equations with surface tension have been proposed (Singh, Farsoiya and Dasgupta. Revision submitted in IJMF). The results from all the above studies are compared by the in-house developed two-phase solver and open source solvers (Gerris (2009) and basilisk (2014)) based on the volume of fluid method.