



TUAT Fluid Dynamics Seminar

Experiments on Cavitation Nuclei and Nanobubbles suspensions



Speaker: Claus-Dieter Ohl

Otto-von-Guericke University, Magdeburg

Date: Tuesday, March 29th, 2022

Time: 16:00 - 17:00

Venue: Online *Your presence and punctuality will be highly appreciated

<https://tuat-jp.zoom.us/j/83228967131?pwd=MmRYMWVxVlhjN29GYnFoNnRCdmc5UT09>

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Abstract

Pulsed lasers are extremely useful to generate and expand small bubbles in liquids and surfaces. In this seminar I will present two simple experimental systems to explore the nature of nanobubbles. The first utilizes a thin liquid gap sandwiched by two stiff transparent materials, i.e. glass. The laser pulse launches a surface wave in the gap that is able to induce tension of up to the homogenous nucleation threshold. We explore this system and provide a novel way to nucleate bubbles by supersaturating the liquid in the gap locally. In the second experimental system we create by some yet unknown mechanism with a pulsed laser submicron sized bubbles in bulk water. Utilizing a rarefaction wave some time after the pulsed laser demonstrates the successful generation of nanobubbles. Both systems are easy to setup in a lab that has a pulsed laser source. I invite you to join this quest in understanding nanobubbles and their nucleation.

Organized by: Prof. Y. Tagawa (tagawayo@cc.tuat.ac.jp)