S3 – Cavitation in Turbomachines

Organizers: Xian-wu Luo & Motohiko Nohmi

The session **Cavitation in Turbomachines** of ISROMAC18 mainly refers to cavitation phenomena in all kinds of turbomachinery such as pumps, hydro turbines, propellers and so on. Cavitation in such turbomachines is a very important issue related with pressure oscillations, operation instability and material damage. The purpose of this session is to have common basic knowledge concerning unsteady cavitating turbulent flows among these turbomachines for a better understanding of the complex phenomena. In recent years, computational and experimental techniques have been developed and applied to clarify unsteady cavitating turbulent flows in turbomachines. However, it is important that appropriate numerical models and experimental instruments are prepared to grasp the physics of such complex flows. These technologies and common understanding will be discussed in this forum.

The **Cavitation in Turbomachines** session of ISROMAC18 aims to provide a good opportunity for a broad exchange of recent researches involving (1) basics of bubble dynamics, (2) experimental approaches for cavitation, (3) numerical methodologies, (4) cavitating flow analysis, (5) design and optimization of turbomachines, and (6) cavitation erosion. Any topics related with cavitation in turbomachines are welcome.

Non-exhaustive list of suggested topics

- Basics of bubble dynamics
- Experimental methods for cavitation test
- Numerical models for cavitation simulation
- Unsteady cavitating flow in pumps, turbines, propellers, valves, etc.
- Cavitation Phenomenon analysis for pumps, turbines, propellers, valves, etc.
- Test and prediction for cavitation erosion
- Development of anti-cavitation material
- Design and optimization for improving cavitation performance

Organizers

Prof. Xian-Wu Luo is working as a Professor at Department of Energy and Power Engineering of Tsinghua University, Beijing, China. He received his B.S. and M.S. degrees from Tsinghua University, China, and Dr. Eng. from Kyushu Institute of Technology, Japan. He is interested in research and development of turbomachinery such as hydro turbines, pumps, small wind turbines, etc. based on the understanding of internal flow using CFD and experimental results**.**

Dr Motohiko Nohmi received a doctoral degree of engineering from Waseda university, Japan. He has been working at EBARA Corporation since 1995. His main research topics are fluid mechanics, hydraulic machineries, computational fluid dynamics, experimental fluid dynamics and cavitation. He is a former chairperson of fluid engineering division of the Japan Society of Mechanical Engineers (JSME). He is a JSME Fellow.

Contacts

luoxw@mail.tsinghua.edu.cn

nohmi.motohiko@ebara.com