OS13 –Fluid-Structure Interactions in Fluid Machinery and Systems

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Fluid-induced vibration and noise refer to vibrations and noise generated in flow fields or structures due to fluid flow or structural motion. In fluid machinery and systems, this phenomenon can cause catastrophic structural damage and excessive noise generation. A wide range of industrial sectors may be affected by potential issues, including automotive, aerospace, civil engineering, offshore structures, power generation systems, and chemical processes. Knowledge of fluid-structure interaction is highly valuable for design engineers, system operators, and researchers. They can be broadly categorized by their excitation mechanism: forced external forces, flow instabilities, or interaction between the structure and the fluid systems. The Fluid-Structure Interactions in Fluid Machinery and Systems session at ISROMAC 18 aims to highlight the latest advances in fluid-induced vibration and noise.

Non-exhaustive list of suggested topics

- Fluid exciting force
- Flow instability
- Fluid-structure interaction
- High and low cycle fatigue
- Vibration and noise
- Countermeasures
- Computational and experimental approaches
- Prediction

Organizers

Hiromitsu Hamakawa is working as a Professor at Oita University in Japan. He received Dr. Eng. from Kyushu University. His primary research interests are vortex shedding, acoustic resonance, vortex-induced vibration, and sound-flow interaction. He specializes in predicting and preventing acoustic resonance in tube banks and improving the performance of acoustic liners.

Njuki Mureithi is Professor of Mechanical Engineering at Polytechnique Montreal, Canada. He received his PhD from McGill University. His research work is principally in the areas of nonlinear dynamics and fluid-structure interaction. Industrial applications include flow-induced vibrations in reactor components and dynamics and stability of rotating machine components.

Kazuaki Yabe is working as a vibration technical expert at TOYO Engineering Corporation in Japan. As a technical expert specializing in Fluid-Induced Vibration and Noise, he focused for over 30 years on noise and vibration countermeasure studies during the design stage and resolving noise and vibration issues during the operation stage for various types of equipment in plants.

Koichi Yonezawa is Senior Research Scientist at Central Research Institute of Electric Power Industry in Japan. He received Ph. D. from Osaka University. He is mainly engaged in research in the field of hydropower engineering, focusing on flow-induced vibrations and cavitation instabilities. He is also interested in the aerodynamics and aeroacoustics of rotorcraft.

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