S6 – Combustion in Turbomachines

Organizers: Hideyo Negishi

Combustion is typically used as an energy source to drive several kinds of turbomachines such as gas turbines, jet engines and liquid rocket engines. When designing combustion devices for such applications, designers need to take into account efficient mixing of fuel and oxidizer, efficient and stable combustion, and effective cooling methods.

The **Combustion in Turbomachines** session of ISROMAC 18 covers various topics related to combustion as an energy source for turbomachines. Proposals of numerical and experimental analyses, numerical models, measuring techniques, design and optimization of combustion devices, and new findings on combustion and heat transfer phenomena are greatly welcome.

Non-exhaustive list of suggested topics

- Basics of the combustion phenomena
- Basics of heat transfer in combustion devices to drive turbomachines
- Basics of injection, mixing, and atomization of propellants
- Combustion devices in turbomachines
- Cooling systems for combustion devices in turbomachines
- Numerical simulations
- Numerical simulations of heat transfer in combustion devices to drive turbomachines
- Numerical models of combustion and heat transfer simulation
- Measurement techniques of combustion and heat transfer experiment
- Design and optimization for improving combustion efficiency and stability

Organizers

Hideyo Negishi is a senior researcher at the research and development directorate of the Japan Aerospace Exploration Agency (JAXA). He has been involved in the development of liquid rocket engines and working on a variety of their numerical simulations, covering combustors, turbopumps, nozzles, pipelines, propellant tanks, and end-to-end liquid rocket engine systems, for about 20 years of his career in JAXA.

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