# FLOW Summer School on
# "Advancements in assessment of high temperature flows"

July 4th – 7th, 2023
FLOW, Department of Engineering Mechanics
School of Engineering Sciences
KTH Royal Institute of Technology
Stockholm, Sweden

https://www.flow.kth.se/

**Scope:** Fluid dynamics has a tremendous impact today on aviation, aerospace, energy conversion, and power production industries. It is an enabling discipline used to develop efficient industrial processes and contributing to generating a sustainable environment. It is well known that the ability to measure, model and predict fluid flows is vitally important for facilitating innovation of processes and technologies associated with highly efficient energy conversion and power production systems. The purpose with this Summer School is to create a forum for interaction between doctoral students, scientists and fluid dynamics experts with expertise in energy conversion and propulsion technologies, to discuss and analyze the state-of-the-art and beyond state-of-the-art computational and experimental methods used for assessing fluid flows within this context and their capabilities in quantifying fluid flow dynamics and associated processes. The FLOW Summer School is aimed to provide - from the perspective of physical laws governing fluid flows - the latest developments in measuring and predicting non-reacting and reacting, high-temperature flows.

**Topics to be covered:** The Summer FLOW School is intended to cover the following topics: State-of-the-art experiments in reactive and high-temperature flows; Simulations and modelling of turbulent reacting flows; Low emission combustors; Aeroacoustics and thermoacoustic problems in propulsion and energy conversion systems; Prediction and control of instabilities. The schedule is:

- Tuesday (04/07)
  **09.00: Getting together, Mingle & Coffee**
  **09.15-09.30: Prof. Mihai Mihaescu**: Welcome, organisation of the school, administration.
  **09.30-12.00: Prof. Simone Hochgreb:** Measurement techniques for combustion and high-temperature flows (I), University of Cambridge, UK.
  **12.00-13.15:** Lunch
  **13.30-16.00: Prof. Simone Hochgreb:** Measurement techniques for combustion and high-temperature flows (II), University of Cambridge, UK.
  **16.15-17.00: TBD**

- Wednesday (05/07)
  **09.00: Mingle & Coffee**
  **09.15-12.00: Prof. Christer Fureby:** Large Eddy Simulations of turbulent reacting flows (I), Lund University, LTH, Sweden.
  **12:00-13.15:** Lunch
  **13.30-16.00: Prof. Christer Fureby:** Large Eddy Simulations of turbulent reacting flows (II), Lund University, LTH, Sweden.
  **16.15-17.00: TBD**

- Thursday (06/07)
  **09.00: Mingle & Coffee**
  **09.15-12.00: Prof. Aimee Morgans:** Thermoacoustic problems in propulsion and energy conversion systems and their suppression (I), Imperial College, London, UK.
  **12:00-13.15:** Lunch
  **13.30-16.00: Prof. Aimee Morgans:** Thermoacoustic problems in propulsion and energy conversion systems and their suppression (II), Imperial College, London, UK.
  **16.15-17.00: Prof. Mihai Mihaescu:** Aeroacoustics of Supersonic Jets related to propulsion applications, KTH Royal Institute of Technology, Stockholm, Sweden.

- Friday (07/07)
  **09.00: Mingle & Coffee**
  **09.15-12.00: Prof. Ephraim Gutmark:** Pressure Gain Combustion-fundamentals and practice (I), University of Cincinnati, USA.
  **12:00-13.15:** Lunch
  **13.30-16.00: Prof. Ephraim Gutmark:** Pressure Gain Combustion-fundamentals and practice (II), University of Cincinnati, USA.
  **16.15-17.00: TBD**

**Administrative details and Registration:** Lectures will be given July 4th to July 7th, 2023, in the seminar room of KTH, Department of Engineering Mechanics (room Faxén, Teknikringen 8) located on the KTH main campus, close to the city centre of Stockholm. FLOW will provide lunches to the registered participants.

Upon request, a project can be performed by pairs of students and sent electronically to the school organizers for the final evaluation, worth 3.5 ECTS points. Interested PhD students are invited to contact the organizers for additional information.

**For registration, please use the link below:**
https://www.kth.se/form/63ff48d2d5a4c540488faf82

**Organizer and contact information:**

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