The use of numerical simulations in the context of High-Performance Computing (HPC) as a tool for design and understanding modern combustion systems is becoming increasingly important in the last decade as more computing power is currently available. However, the modelling of combustion systems is very demanding in terms of physical models and algorithms, since it not only requires the modelling of combustion and turbulence, but also their interactions with additional phenomena such as atomization, vaporization, phase change, turbulent mixing and stirring. The interaction of the flame with the surroundings is also of crucial importance with influence on different aspects such as near wall behaviour, heat losses or fluid/structure interactions. Furthermore, combustion process usually involves large number of reacting species and radicals depending on the fuels leading to multiscale and multiphysics problems with large disparity of time and length scales. All aspects of combustion simulations inherently need large number of computing resources and this community is well known to be an important player in HPC-related activities worldwide.

The 2nd Spanish HPC combustion workshop is dedicated to present the state of the art in modelling and simulation techniques for combustion applications in the national context with representative research institutions. The topics go from multiphase flow calculations, combustion instabilities, alternative fuels, large-eddy simulations, numerical methods for reacting flows to advance multiphysics applications. The event honours the participation of three invited speakers: José M. Desantes, Edward Richardson and Salvador Navarro-Martínez.

The workshop is free, but the places are limited and require registration.
Preliminary Agenda

09:00 – 09:30h – Registration

09:30 – 09:40h – Welcome (Daniel Mira & CASE Dpt. Director Jose M. Cela)

09:40 – 10:00h – David Vicente (User support manager - BSC & RES)

10:00 – 10:30h – Vision and Welcome (Prof. José M. Desantes, Research Deputy Director CMT-Motores Térmicos)

10:30 – 11:10h – Prof. Salvador Martínez-Navarro, Imperial College (UK)

11:10 – 11:40h – Coffee break

11:40 – 12:20h – Prof. Edward Richardson, University of Southampton (UK)

12:20 – 13:20h – Technical sessions Morning (20 min/talk)

13:20 – 14:30h – Lunch

14:30 – 15:00h – Flash talks (3-5 min/talk, to be announced)

15:00 – 16:00h – Technical sessions Afternoon I (20 min/talk)

16:00 – 16:30h – Coffee break

16:30 – 17:30h – Technical sessions Afternoon II (20 min/talk)

17:30 – 17:40h – Closing

Venue

Barcelona Supercomputing Center
Address: Calle Jordi Girona 31, 08034 Barcelona
Workshop room: Building Rectorado, Sala de Juntas, 1st floor