

HPCCOMB2021 – 3rd HPC Spanish Combustion Workshop

Date: Friday 2nd of July, 2021, from 9:00h – 17:00h

Agenda

09:00 – 09:10h – Welcome (Daniel Mira & Carmen Jiménez)

09:10 – 09:30h – Red Española de Supercomputación (RES) - Oriol Pineda (Infrastructure Access Policy Coordinator- BSC)

09:30 – 10:00h – **Plenary session:**

- *Physics/DNS-based examination of some issues on turbulent reacting flows* (César Dopazo, Universidad de Zaragoza)

10:00 – 10:40h – **1st Keynote session:**

- *Modelling and simulation of soot formation and evolution in turbulent flames* (Benedicte Cuenot, CERFACS)

10:40 – 11:20h – **Technical sessions Morning I:**

- 10.40 – 11.00h - *Direct numerical simulations of particle-forming flames* (L. Cifuentes, IVG U. Duisburg-Essen)
- 10.40 – 11.00h - *Large Eddy Simulations of a n-heptane spray flame with local extinction* (J.M. Pastor, CMT Motores Térmicos UPV)

11:20 – 11:30h – *Coffee break*

11:30 – 12:50h – **Technical sessions Morning II:**

- 11.30 – 11.50h - *Analysis of flame stability in a turbulent swirl-stabilized hydrogen flame* (A. Both, Barcelona Supercomputing Center)
- 11.50 – 12.10h - *Single-step mechanisms for the autoignition of fuel-air mixtures in constant volume batch reactors* (A. Millán, Aix-Marseille U.)
- 12.10 – 12.30h - *An extended flame index partitioning for partially premixed combustion.* (E. Illana, Ruhr U. Bochum)
- 12.30 – 12.50h - *Thermochemical effects on hypersonic shock waves interacting with weak turbulence* (C. Huete, Universidad Carlos III Madrid)

12:50 – 14:00h – *Lunch*

14:00 – 15:00h – **Technical sessions Afternoon III:**

- 14.00 – 14.20h - *Numerical simulations of hydrodynamically unstable flames in Hele-Shaw cells* (D. Fernández-Galisteo, CIEMAT)
- 14.20 – 14.40h - *Thermoacoustic instabilities in two-dimensional slender semi open channels* (D. Rodríguez Gutiérrez, INTA)
- 14.40 – 15.00h - *Accurate and efficient calculation of multicomponent thermal diffusion fluxes based on kinetic theory* (O. Córdoba, UNED)

15:00 – 15:40h – **2nd Keynote session:**

- *Swirling dynamics in liquid-pool fires* (Antonio L. Sánchez, University of California San Diego)

15:40 – 16:00h – *Coffee break*

16:00 – 17:00 – **Flash talks + Q & A**

- 1) *Laminar diffusion flame modelling using 2D Bunsen Generated Manifolds (BGM)* (Gontzal Lopez-Ruiz, IKERLAN/UPV)
- 2) *Lean burning below the flammability limit in a small-scale combustor* (F.J. Bosch-Calvo, CIEMAT)
- 3) *Implementation and application of the Conditional Moment Closure in the multi-physics code Alya in the frame of Large Eddy Simulations* (E.J. Pérez-Sánchez, BSC)
- 4) *One and two-headed quasi-planar hydrogen premixed flames* (A. Domínguez-González, UPM)
- 5) *Flux analyses applied to chemistry reduction in a multi-regime combustion problem* (A. Surapaneni, BSC)
- 6) *LES Simulation of Non-reacting and Premixed Reacting Flows in a Low Swirl Burner* (F. Rodrigues da Silva, BSC/CMT – UPV)
- 7) *Thermo-acoustic instabilities of premixed methane-air flames propagating in narrow tubes: heat-losses effects* (E. Flores-Montoya, UPM)
- 8) *The use of hydrogen as a fuel in dual cycle compression ignition engines* (N. Romero-Antón, EHU - UPV)
- 9) *Theoretical and numerical study of shock-wave impingement on mixing layers* (P. Martínez-Ferrer, BSC)

17:00 – 17:15h – **Closing**