Fundamental studies on combustion properties under deflagrating and detonating conditions

Nabiha Chaumeix, PhD

04.11.2016, 15:30, METU, Department of Mechanical Engineering, E-200

Summary

The seminar will first introduce the major global combustion parameters relevant both for deflagration and detonation conditions. They mainly concern the concepts of ignition delay, minimum ignition energy, laminar flame propagation velocities and extinction strain limits. In a second part, the experimental facilities used at ICARE-CNRS to investigate such parameters will be briefly described. They concern various shock tubes and detonation and flame acceleration facilities as well as spherical combustion chambers operated under various temperature and pressure conditions, and their associated diagnostics. Finally, some examples of research projects using these facilities and equipment will be summarized and the importance of obtaining such accurate experimental data to validate chemical kinetics codes for combustion and detonation applications will be emphasized.

Short Bio & Research Interest

Dr Nabiha Chaumeix has graduated from the Polytech’Orléans Mechanical engineering Department. She obtained her PhD in 1993 at the University of Orléans. She is Research Director at ICARE-CNRS in Orléans, France and heads the research group on Combustion and Detonations. Her research interests are fundamental combustion studies of laminar and turbulent flame propagation, chemical kinetics of combustion and pollution formation, especially soot formation, flame acceleration and transition to detonation, hydrogen combustion and explosions, mainly. She is the principal investigator of several French and European research projects on these topics, mostly in cooperation with related industrial partners, such as TOTAL, Air Liquide, AREVA, EDF, CEA, INERIS, IRSN, CNES among others.