Séminaires @ ICARE

Numerical analysis of image data from reactive flows

par

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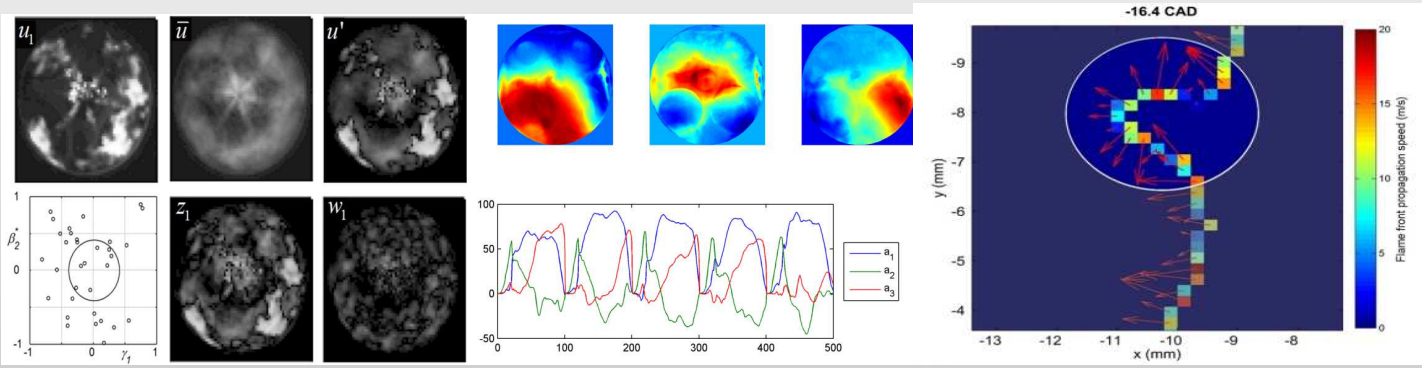
The progress of high speed imaging of reactive flows opened up a wealth of new investigation activities of the mixing process, flame ignition, propagation and extinction, allowing progress towards cleaner and more efficient combustion, and contributing to the development of better predictive numerical models. The high camera frame rates, the high spatial resolutions, and the huge storage and elaboration capabilities available nowadays, permit the diagnosis of spatially distributed processes characterized by very fine spatial structure and very short time scales. To fully take advantage of the abundance of information contained in spatiotemporal data, the continuing improvement in the imaging and data storage technology technologies has to be accompanied by the development of advanced analytical techniques. This lecture introduces and briefly illustrates recent applications of some decomposition methods, such as Proper Orthogonal Decomposition, Independent Component Analysis, and Optical flow, to reactive flows.



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