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Engineering : Engineering Fluid Dynamics

Merci, Bart, Gutheil, Eva (Eds.)

Experiments and Numerical Simulations of Turbulent Combustion of Diluted Sprays

TCS 3: Third International Workshop on Turbulent Spray Combustion

- Reviews of recent experimental, modelling and numerical techniques help readers to find their way in the growing body of literature on spray combustion
- Includes various simulations of academic and practical test cases that exemplify the performance and limits of state of the art spray modules for spray combustion
- Includes extremely valuable and well-documented experimental data needed by modelers for validation of spray combustion models

This book reflects the results of the 2nd and 3rd International Workshops on Turbulent Spray Combustion. The focus is on progress in experiments and numerical simulations for two-phase flows, with emphasis on spray combustion. Knowledge of the dominant phenomena and their interactions allows development of predictive models and their use in combustor and gas turbine design. Experts and young researchers present the state-of-the-art results, report on the latest developments and exchange ideas in the areas of experiments, modelling and simulation of reactive multiphase flows. The first chapter reflects on flame structure, auto-ignition and atomization with reference to well-characterized burners, to be implemented by modellers with relative ease. The second chapter presents an overview of first simulation results on target test cases, developed at the occasion of the 1st International Workshop on Turbulent Spray Combustion. In the third chapter, evaporation rate modelling aspects are covered, while the fourth chapter deals with evaporation effects in the context of flamelet models. In chapter five, LES simulation results are discussed for variable fuel and mass loading.

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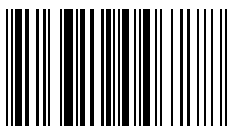
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