

Modelling in Ecology, Epidemiology and Evolution

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Abstract. In the preface, we present a short overview of the papers included in the issue of Mathematical Modelling of Natural Phenomena ‘Modelling in Ecology, Epidemiology and Evolution’.

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This special issue of journal of *Mathematical Modelling of Natural Phenomena* (MMNP) includes new full-manuscripts based on selected presentations in the area of combustion technology and fundamentals at the Fifth International Symposium on Innovative Energy Research II (Fifth ISIER-II), organized under the Fourteenth International Conference on Flow Dynamics (ICFD2017) which was held on November 1–3, 2017 in Sendai, Japan.

ICFD is an annual series conference organized by the Institute of Fluid Science, Tohoku University, Sendai, Japan since 2004 which covers broad areas of flow dynamics including combustion, heat transfer, aerodynamics, plasma physics, molecular dynamics, bio-medical flows, shock wave, cavitation and so forth. The objectives of the ICFD are to explore new horizons in science and technology in all areas of nonreacting and reacting flow dynamics.

The organizers of ISIER-II which specialized combustion science and fundamentals decided to bring out papers presented at the conference as a special issue of the journal (MMNP). The topics covered in this special issue include:

- laminar premixed and diffusion flames;
- burner stabilized and jet flames;
- flame chemistry and methods of kinetics reduction;
- micro combustion, flame structure, dynamics and diagnostics;
- detonation waves structure and deflagration-detonation transition;
- direct numerical simulations of flame/flow dynamics.

The organizers hope that this MMNP issue would make a good reference material and be of great use for combustion scientists and engineers.

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