ADVANCES IN COMPUTATIONAL MATHEMATICS

500 - COMPUTATIONAL APPLIED MATHEMATICS

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Key words: Kinetic Theory, Machine Learning, Particle-laden Flows, Complex Fluids, Energy Systems.

ABSTRACT

Join our mini-symposium on Computational Applied Mathematics, featuring topics such as kinetic theory, machine learning models, particle-laden flows and complex fluids and energy systems.

The symposium will cover a wide range of subjects, including the behaviour of particles in kinetic systems and the development of numerical methods to study them. We will also explore detonation wave solutions, investigating their formation, propagation, and stability through computational simulations. Machine-learning models will be explored in the context of solving complex mathematical problems. Their applications in numerical analysis, optimization, and data-driven modelling will be discussed, emphasizing their ability to extract meaningful information and accelerate computations. The relationship between fluids and energy will be investigated, examining energy conversion processes, fluid-structure interactions, and the optimization of energy systems. Computational simulations and data-driven approaches will provide insights into sustainable and efficient solutions. Viscoelastic fluid flows will be examined, focusing on the behaviour of fluids with both viscous and elastic properties.

Computational approaches will be explored to analyse non-Newtonian behaviour, elasticity-induced instabilities, and complex flow patterns

Join us as we bring together researchers and practitioners to explore the frontiers of Computational Applied Mathematics.