EDITORIAL

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Review and Perspective in Mechanics

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Over the last 50 years, Acta Mechanica has published a broad range of articles in both traditional and emerging fields. Two years ago, the Editors have decided to start a new Section of the journal: Review and Perspective in Mechanics, with two articles per year. Authors of these special articles are invited by the Editors. It is anticipated that each new contribution will provide a coherent review on a topic of some broad interests, highlight new methodologies, and depict a vivid image on the current state-of-the-art and future research directions.

In the fifth article of this Review and Perspective in Mechanics series, we present the work authored by Professor Cristian Marchioli from the University of Udine, Italy, on numerical simulation of turbulent dispersed flow. The review is focused on the Large Eddy Simulation for turbulent particle dispersed flow, a methodology which is more and more applied to industrial, environmental, and geophysical problems. Developing new reliable models in this difficult and rapidly evolving subject is crucial, with many new ideas and modelling proposals appearing that still require testing and calibration. The present review provides an updated analysis of the physics involved in the dispersion of small particles in turbulence, the modelling challenges, and the new model formulations. The Editors are confident that, with an organized and structured presentation of the subject and a personal perspective on the future development goals, it will be useful for the community.