

Special Issue on Fluid Dynamics: An Introduction

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This special issue includes technical papers that were peer-reviewed, accepted and orally presented in the Twelfth International Conference of Fluid Dynamics (ICFD12)", 19-20 December, 2016, Le Méridien Pyramids Hotel, Cairo, Egypt. Fluid dynamics is a sub-subject of fluid mechanics that designates the flow of fluids. Usually, fluids are divided into liquids and gases. Consequently, fluid dynamics has several branches, e.g., aerodynamics, and hydrodynamics, turbomachinery, propulsion, etc. Fluid dynamics covers a wide range of applications, including calculating forces and moments on vehicles (aircraft, automotive, train), determining the mass flow rate and pressure of liquids (petroleum) through pipelines, predicting weather patterns, etc. Fluid dynamics offers a systematic configuration to embrace empirical and semi-empirical laws derived from flow measurement as well as schemes of computational techniques to solve practical problems. By definition, investigation of fluid dynamics problems naturally involves the calculation of various properties of the fluid, such as flow velocity, pressure, density, and temperature, as functions of space and time.

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