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Computational Fluid Dynamics: Modelling of Industrial Flashing Processes

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Message from the Guest Editors

The industrial application of flashing processes is varied, for example, multi-stage flash-evaporation of seawater for wining desalinated water; flashing sprays in engines for enhancing fuel atomization and improving combustion characteristics; flash drum as an energy-efficient alternative to the conventional distiller to separate two components with different boiling points, and flash steam geothermal power plants. Similar to cavitation, where the phase change is mainly controlled by mechanical non-equilibrium, the vapor generated by flashing at lower pressure regions may condense again as it undergoes pressure recovery. As a result, flow instability that leads to noise and damage may result from flashing. Another extreme example is the boiling liquid expanding vapor explosion (BLEVE), which occurs when a vessel containing a pressurized liquid is ruptured, and the liquid flashes rapidly through the failure. Therefore, the study of the flash phenomenon is important for both economic efficiency and the safe operation of industrial equipment. This Special Issue aims to collect work from diverse application backgrounds and provide a platform for interdisciplinary exchange.

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Message from the Editor-in-Chief

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