

Physico-chemical / Engineering Aspects of Flow Chemistry

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Small scale channel reactors have emerged as a technology offering advantages due to miniaturization over classical approaches such as faster mixing, better heat and mass transfer. It allows the control of reactions that need very short residence time and/or fast mixing and enables performing greener, more economical and safer processes.

Implementation of efficient reactions in flow reactors in labs, and scaling-up of the process to a production scale unit requires in depth understanding of physical and chemical phenomena occurring inside the flow channels under flow.

This short course will review key principles ruling the reaction in flow channels, as well as engineering considerations for designing small scale flow reactors up to larger scale production units. Examples of small scale and larger scale reactors will be given, as well as sensing and auxiliaries equipment needed to make the reactors effective in delivering the process intensification benefits.