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DESCRIPTION

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- Hydrodynamics, heat and mass transfer in separation equipment
- Physical properties and thermodynamic models/methods
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- Process equipment characterisation
- Process modelling, simulation and optimisation

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- Fluid flow and mixing in process equipment
- Reactive flow
- Turbulent flow
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- Multiphase flow
- Computational fluid dynamics
• Porous media flow
• Interfacial flows, coating & wetting phenomena
• Complex fluids
• Non-Newtonian fluids
• Flow visualization

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• Mechanisms of heat and mass transfer
• Multicomponent mass transfer
• Simulation of heat and mass transfer processes
• Simultaneous heat and mass transfer

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• In-line measurement and control of material processes
• Morphological development processes
• Pre-processing, shaping, multi-layering and finishing of final product form
• Product design based on chemical engineering tools
• Structure-function relationships in products and relevant systems
• Tailoring chemical products and materials for end-use applications

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• Crystallisation and precipitation
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• Formation and synthesis of particulates
• Kinetics of particulate processes
• Measurement and characterisation of particulate systems
• Processing, handling and storage of powders and dispersions
• Product formulation and rheology

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• Design, modelling, operation and control of pharmaceutical (bio)reactors, unit operators and process systems used in the production of (bio)pharmaceuticals
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• Pharmacokinetic and pharmacodynamic modelling
• Design, characterisation and modelling of drug delivery systems

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• Reactor development, modelling and scale-up

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