From Lab to Plant: the Up-Scaling of Innovative Technologies

Using virtual experiments to scale-up multiphase flows in innovative reaction and separation processes, from proof of concept through to industry-scale operation.

Competitive advantage

- Enabling the scale-up of innovative technology at low cost and in a safe and timely manner
- Design can be customised to an individual process and allows for specific requests to be made

Impact

- The design, test and customisation of new reactors from basic research all the way through to system test and operation
- Lowering operating costs and energy consumption by optimising raw materials, operational conditions and geometry parameters
- Enhancing operational efficiency and stability in the food industry

Successful applications

- Designed and optimised new raw materials saving 1.5M pa in costs for a steel company
- The scale-up of a coal upgrading technology to improve the cleanliness and efficiency of cokemaking, for a coal company

Capabilities and facilities

- State-of-the-art computational techniques and skills, including computational fluid dynamics, discrete element method and finite element method
- Lab-scale test rigs e.g., ribbon mixers and fluidised beds

Our partners

- BlueScope
- BHP
- Visy
- Baosteel
- COFCO
- Rio Tinto
- Cleantech Energy Australia

More Information

A/Professor Yansong Shen (ARC Future Fellow)

School of Chemical Engineering

T: +61 2 9385 4448
E: ys.shen@unsw.edu.au

UNSW Knowledge Exchange

knowledge.exchange@unsw.edu.au

www.capabilities.unsw.edu.au

+61 (2) 9385 5008