![UNSW Sydney logo]

Advanced Powder Handling

Using numerical and experimental techniques to understand and optimise the powder-handling processes in modern food industries.

Competitive advantage

- Ability to understand powder behaviour at macro and/or micro scales
- Experience in designing and optimising food powder-handing processes under a wide range of conditions, at low cost
- Capability to model and characterise extra fine or coarse, non-spherical, or cohesive powders

Impact

- Enhancing the quality of powder and powder-based products
- Reducing operating costs and energy consumption by optimising raw materials, operational conditions and geometry parameters
- Improving the operational efficiency and environmental-friendliness of powder-handling processes

Successful applications

- Designed and optimised powder mixing in a ribbon mixer for a food company
- Improved powder agglomerating with improved tablet quality for a pharmaceutical company
- Applications for grain, food, dairy and soil powders etc. for a wide range of powder handling processes e.g., packing, mixing, briquetting, conveying, storage, drying and coating

Capabilities and facilities

- State of the art computational techniques and skills including DEM, CFD, FEA
- Advanced computational facilities and massive computing resources from NCI (National Computational Infrastructure)
- Lab-scale test rigs of powder processing e.g., ribbon mixers and fluidised beds; particle characterization; and PIV for visualize particle movement

Our partners

- COFCO
- Suzhou New Life Medical Device Co. Ltd

More Information

A/Professor Yansong Shen (ARC Future Fellow)

School of Chemical Engineering

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