Using mathematical modelling to design and optimise food processing technologies, such as thermal pasteurisation, freezing, chilling and drying, ultrasound, plasma and radio frequency electrical fields.

Competitive advantage

- Expertise in transport phenomena for the design and optimisation of thermal pasteurisation of liquid foods, and the freezing, chilling and drying of solid foods
- Novel and non-thermal processing technologies, such as radio frequency electric field and ultrasound, to enhance the quality of processed foods
- Use of mathematical modelling to develop new, and optimise existing, processing technologies

Impact

- Increased the quality of coffee brews
- Enhanced the oil yield extraction from oilseeds

Successful applications

- Novel technology to produce coffee brews of enhanced organoleptic properties with the assistance of ultrasound
- Radio frequency technology for the non-thermal pasteurisation of fruit juices
- Ultrasonic process to enhance the oil extraction from oilseeds
- Plasma activated water system for the surface decontamination of red meats

Capabilities and facilities

- Equipment for radio frequency processing, ultrasound processing, high pressure and non-thermal plasma

Our partners

- CSIRO
- Australian Meat processing corporation