# **Hounsfield Facility**

The University of Nottingham

www.nottingham.ac.uk/microct

UNITED KINGDOM · CHINA · MALAYSIA



# Non-destructive 3D visualisation and analysis using Micro Computed Tomography (CT)

#### **Benefits**

- No sample preparation or cross-sectioning
- · 3D visualisation of internal structure
- Multiphase measurements and analysis
- High resolution (down to 1 μm)
- Repeated analysis of same sample

### **Example applications**

- Assessment of 3D morphology
- Defect and fault analysis
- Temporal variations in structure
- Phase separation and analysis
- Multi-resolution imaging

# **Example Applications**

#### **Food Technology**



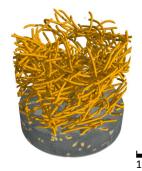
Aerated chocolate permitting analysis of 3D porosity and bubble size distribution

#### **Biomaterials**



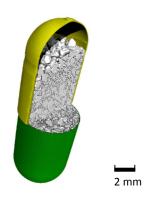
Poppy seed pod allowing automatic assessment of inclusions and particles

#### **Engineering**



Metal wires in a cement core allowing evaluation of strength characteristics

#### **Pharmaceutical**



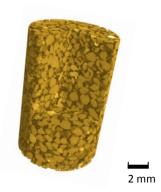
Paracetamol capsule showing visualisation of particle packing density

#### **Electronics**



A USB stick allowing detailed component analysis and defect detection

#### Geosciences



Sandstone scanned to reveal changes in morphology following fluid flow

## **Our X-ray CT facilities and services**

- Multiple 'state-of-the-art' CT scanners available for a variety of applications
  - A range of scanning chambers to accommodate samples of different sizes
  - Varying X-ray energy ranges to probe samples of different densities & thickness
  - High resolution systems (down to 1  $\mu m)$
- High performance computing for 3D image visualisation & analysis
- Analytical solutions for structural performance & integrity problems
- · Bespoke software development for the automated analysis of multi-phase materials
- A cross-disciplinary team of experts with >15 years of CT & image analysis experience



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