

UK NATIONAL FUNDING OPPORTUNITIES



University of
Strathclyde
Science



CMAC
FUTURE MANUFACTURING
RESEARCH HUB

PSSRC in the UK



University of Cambridge: Prof Axel Zeitler

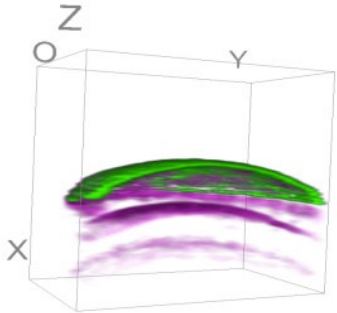
1. Methods

Complementary Methods

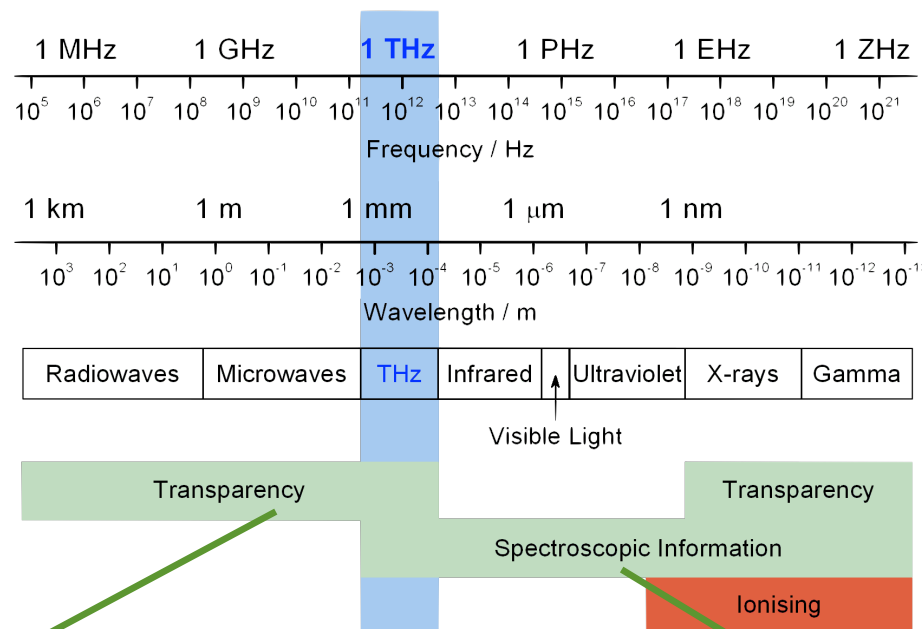
X-ray microtomography

Thermal characterisation

Disintegration/ dissolution



Tablet internal structure.



Microstructure

Density Distribution in Tablets – Porosity;
Disintegration; Protein reconstitution

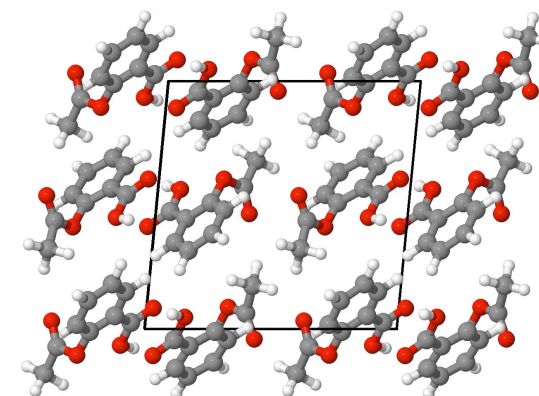
Molecular Interaction and Structural Dynamics

Drug solubility – Amorphous Formulation and Stabilisation;
Aggregation of Therapeutic Proteins; Role of Water

Numerical Techniques

Solid state density functional theory

Ab initio molecular dynamics



THz mode in aspirin.

2. Applications

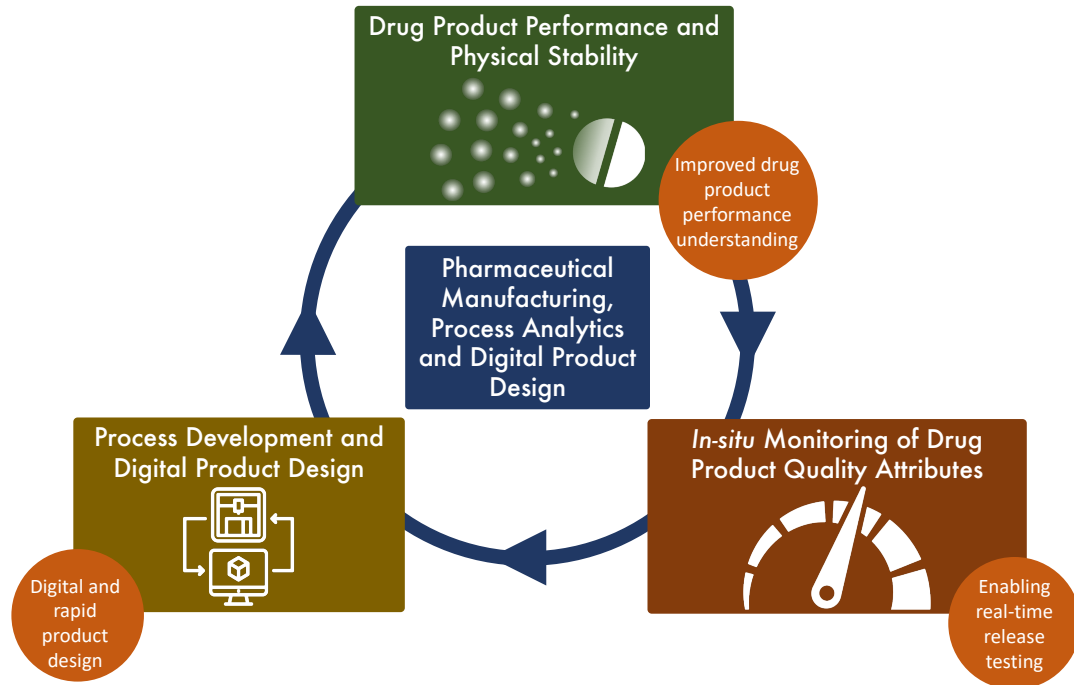
Pharmaceutical Sciences: Polymorphism; amorphous stability; tablet porosity; coatings; tablet disintegration.

Catalysis: Mass transport in porous media; conductivity of coke.

Physical Chemistry: Structural dynamics, cluster formation in liquids, crystallography, ...

University of Strathclyde: Daniel Markl

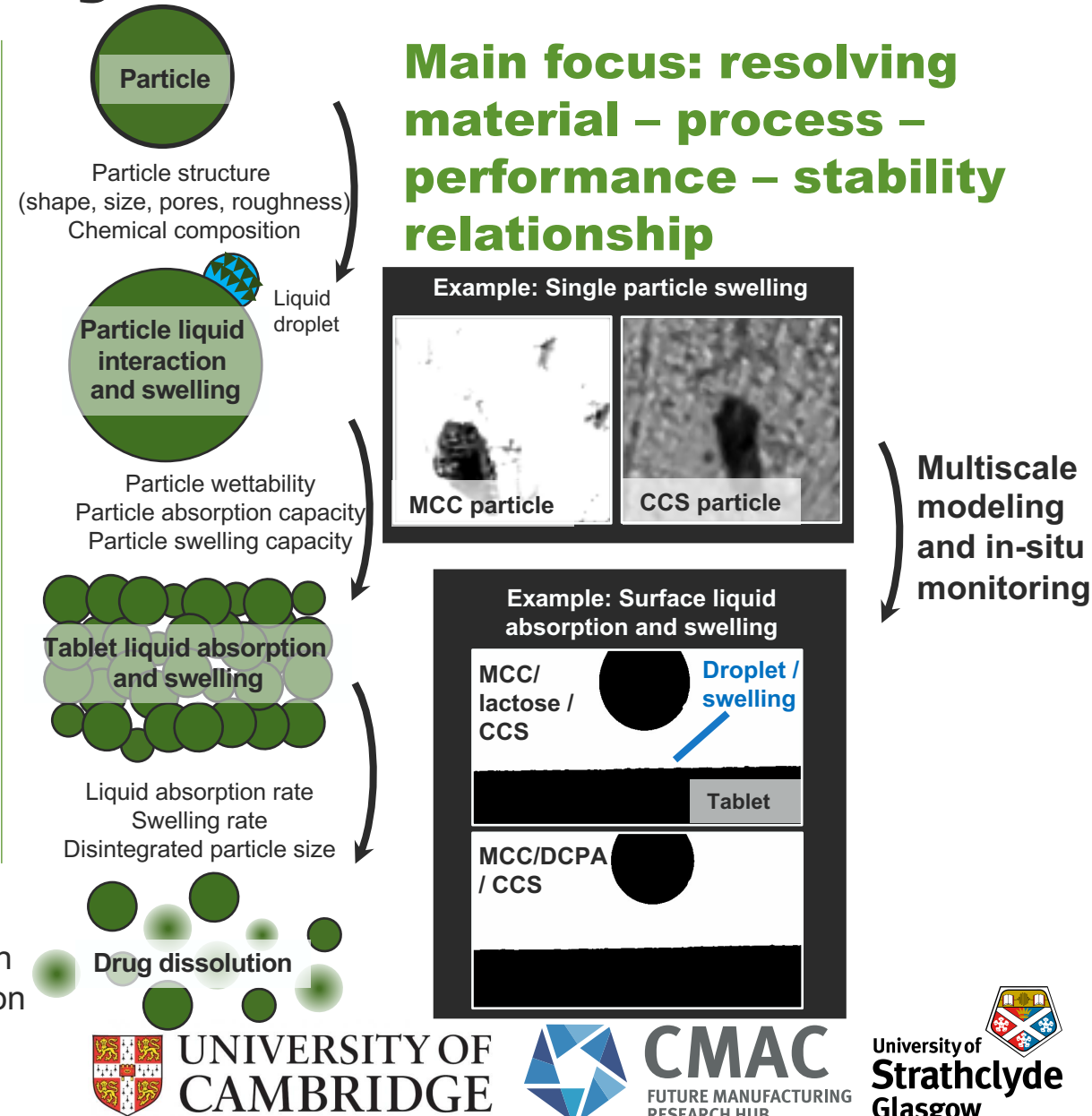
Research across three areas



Methods

- Terahertz imaging and spectroscopy
- Optical coherence tomography
- X-ray nanotomography
- Direct compression, dry & wet granulation
- Hot melt extrusion, 3D printing etc
- Particle characterisation
- Thermal characterisation
- Disintegration/ dissolution

Main focus: resolving material – process – performance – stability relationship



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UK Opportunities

Studentships and scholarships

- PhD studentships advertised on <https://www.jobs.ac.uk/>
- PhD scholarships at Strathclyde and Cambridge
- External PhD scholarships
 - Scotland's [Carnegie Trust](#) scholarship
 - Cambridge: [Gate's](#) scholarship
- Strathclyde International Strategic Partner studentships (KU Leuven, TU Graz)

THE
ROYAL
SOCIETY



Engineering and
Physical Sciences
Research Council



Scholarships

- [Strathclyde](#)
- [Cambridge](#)

Exchange and networks

- UK [Catapults](#) (Q3 in 2021 new calls) and EPSRC Network funds networks and exchange programmes
- [Scottish Research Partnership in Engineering](#): PEEK & PECRE funding
- See more opportunities in Post-Doc opportunities



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UK Opportunities



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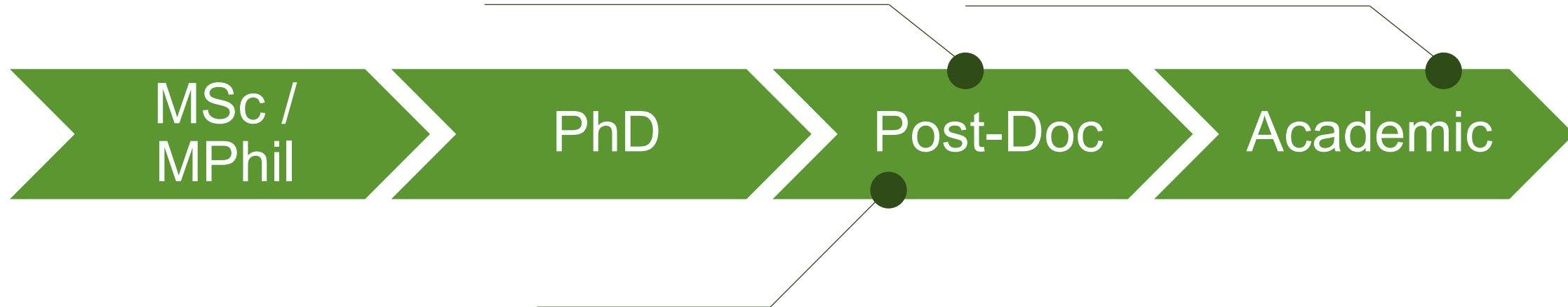
THE
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SOCIETY

Fellowships

- [EPSRC Postdoctoral Fellowships](#)
- [Royal Commission 1851 Fellowships](#)
- [Newton International Fellowships](#) (for incoming post-docs & academics)
- Cambridge colleges: most college offer Post-Doc fellowships

Fellowships

- [EPSRC Open Fellowships](#)
- Royal Society fellowships



Exchange and networks

- UK [Catapults](#) (Q3 in 2021 new calls) and EPSRC Network funds networks and exchange programmes
- [Scottish Research Partnership in Engineering](#): PEEK & PECRE funding
- [EPSRC Overseas Travel Grant](#)
- [Royal Society International Exchange](#) programme (for incoming and outgoing, post-docs, academics) to stimulate new collaborations



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Past PSSRC Visits and Collaborations

Visiting students in Cambridge

- Isabelle Russe (2011, Düsseldorf, preregistration student)
- Julia Alopaeus (2014, Abo, Masters student)
- Moritz Anushek (2019, Munich, Masters student)
- Anne Skelbæk-Pedersen (2019, Copenhagen, PhD student)

Jointly supervised PhD students in Cambridge

- Daniela Brock (2010–2013, Düsseldorf)
- Nele Hempel (2018–, Copenhagen)
- Moritz Anushek (2020–, Copenhagen)

Postdocs

- Daniel Markl (2016–2018, joining from Graz)



Collaborations resulting in 36 papers

with Düsseldorf, Copenhagen, Otago, Leuven, Graz, Lille, Helsinki and Ghent

Lots of fun and ... a new cluster centre at Strathclyde!

Contact Details

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Webpage: <https://themarkllab.com/>

Webpage CMAC: <https://www.cmac.ac.uk/>

Webpage Equipment: <https://www.cmac.ac.uk/facilities.htm>