

EPSRC

Engineering and Physical Sciences
Research Council

UNIVERSITY OF
Southampton

Optoelectronics
Research Centre



EPSRC Centre for Innovative Manufacturing in Photonics



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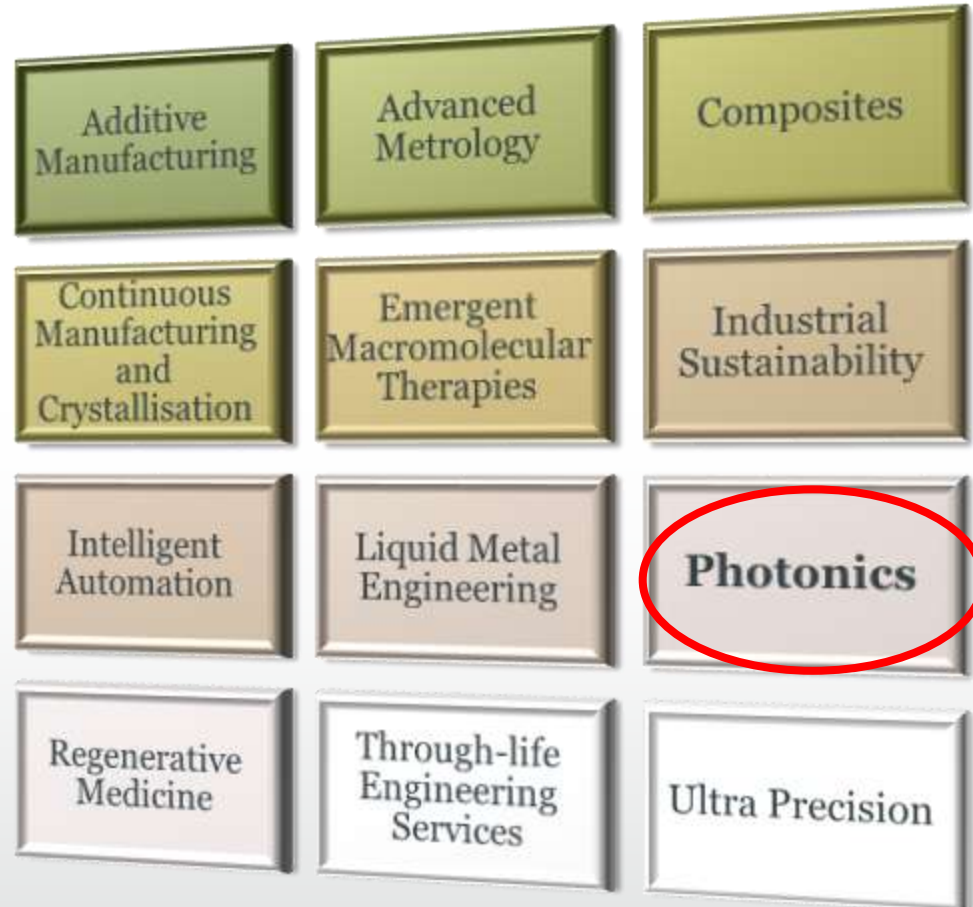
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12 EPSRC Centres for Innovative Manufacturing

Aims:-

- Create, deliver and disseminate world-leading research
- Address long-term manufacturing challenges/emergent opportunities
- Provide strong support for UK manufacturing industries
- Enhance the global profile and significance of UK research
- Create a national network of expertise in manufacturing knowledge
- Outreach to other centres and relevant research groups



EPSRC Centre for Innovative Manufacturing in Photonics

- Based at University of Southampton
- Dedicated to research in manufacturing photonics
- Initial focus
 - Optical fibre fabrication and associated processes
 - Innovative manufacturing techniques
 - Infrared glasses
 - Reliable / robust manufacturing techniques
- Capability focused
 - Combining expert knowledge & state of art facilities
 - Close engagement with the UK manufacturing sector
 - Fast response to solve real world problems
 - Training a new generation of industrial aware photonics engineers



How it works:-

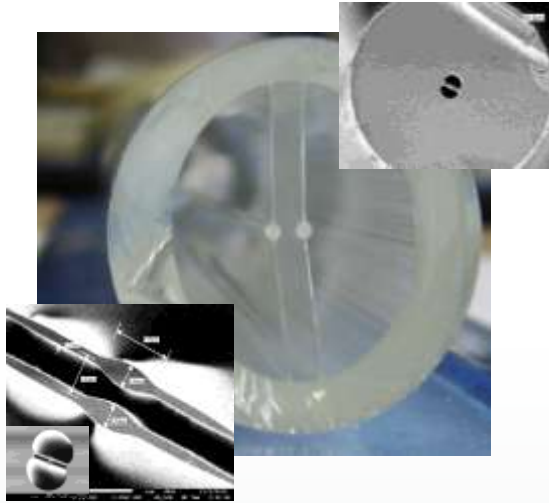
Two types of projects

- Platform Projects
 - Long term, broad impact and lowest TRL level
 - Building capability for multiple future products / applications
 - Internally generated (with advisory board feedback)
 - e.g. low loss infrared glass fabrication methods for $> 2\mu\text{m}$
 - Major centre sponsors have 1st option on IP
- User-driven projects
 - Initiated by an industrial partner
 - Either for initial feasibility leading to dedicated project
 - Or fixing immediate problem
 - real samples for real products
 - IP terms determined by fraction funded by industry
 - Specific and confidential e.g.
 - extending performance beyond that commercially available
 - improving a process
 - auxiliary component



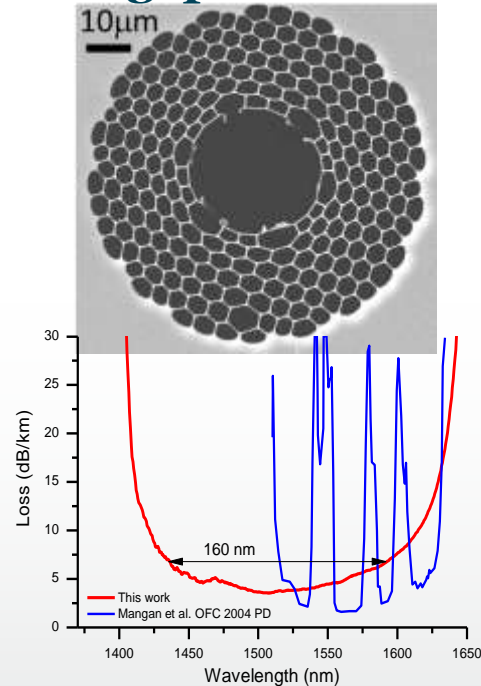
Examples (platform projects)

Controlled mechanical movement inside fibre



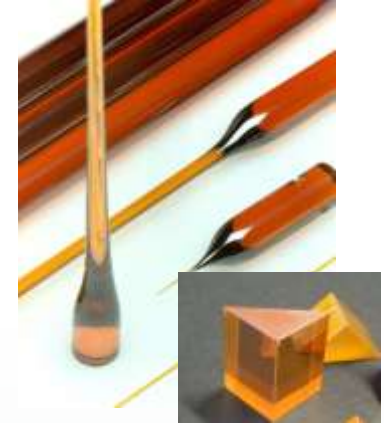
- Supported with full modelling
- Applications in
 - Optical switching
 - Sensing
 - Delay lines etc

Wide bandwidth hollow core photonic bandgap fibres



- Record wide bandwidth-loss
- Now extended to 2μm
- Applications in data and power delivery

High purity non-toxic Chalcogenide Glasses



- New capability for raw material purification and synthesis
 - Solve material quality
 - Develop safe reliable manufacturing process @15g / hour



How to engage with the Centre

- Industry
 - Contact us with your requirements, especially in fibre area
 - Flexible solutions
 - From feasibility studies to processes to components and accessories
 - Photonics is varied and diverse
 - If we can't help we will direct you to others who can
- Photonics researchers
 - We are working with EPSRC to build a national capability portal
 - Please contact us to be sure you are included.

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