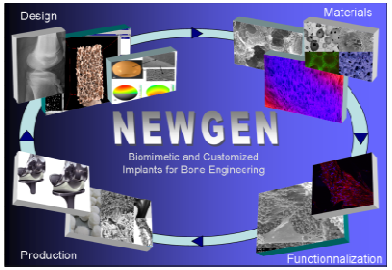
Queen's Unniversity, Belfast

GENERAL PRESENTATION

Partner's logo

- ✓ **Complete denomination**: School of Mechanicial and Aerospace Engineering
- ✓ **Location (city, country)**: Belfast, N. Ireland, UK
- ✓ **Director**: Professor Fraser Buchanan
- ✓ **Contact person in NEWGEN**: Hilda Mulvihill (IE)
- ✓ **Working Group involvment**: WG2 : Manufacturing and characterization of 3D-porous scaffolds
- ✓ **Staff**: Dr Alex Lennon, Dr Andrew Hamilton, Dr dans un, Dr Chi Chan, Dr Eoin Cunningham
- ✓ **Research topics**: Polymer processing, FDM, PLLA / PLGA degradation testing, Calcium phosphate ceramics and cements
- ✓ **Researchers expertises**:

Name/Acronym
Institution
Street n°
Postcode, city - COUNTRY

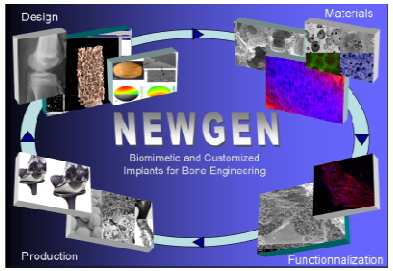


Exemplar Projects- Medical Polymers

EU FP7 BioPoly-Tec

Enhanced Process Monitoring & Control Technology to

Accelerate Development of Bioresorbable Medical Devices



COST Action MP1301

Exemplar Projects- Medical Polymers

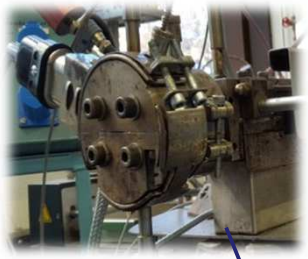
EU FP7 BioPoly-Tec

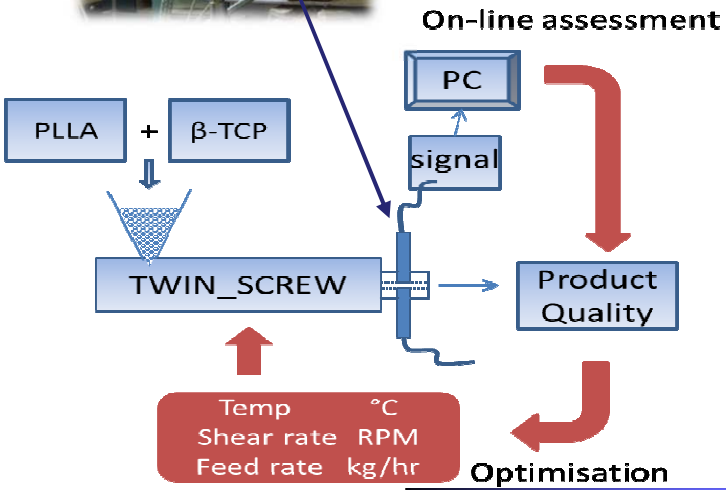
Enhanced Process Monitoring & Control Technology to

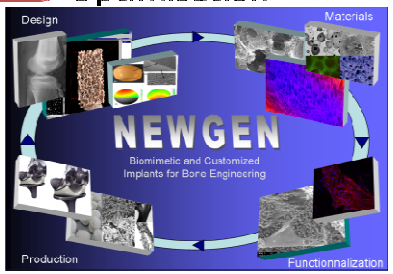
Accelerate Development of Bioresorbable Medical Devices

- Manufacturing can be complex:
- PLLA Polymer can degrade
- Fillers can agglomerate
- In situ sensors developed to monitor melt-processing
- NIR spectroscopy - polymer degradation
- UV-Vis spectroscopy - particle agglomeration

https://www.youtube.com/watch?v=IQliVhFqucI





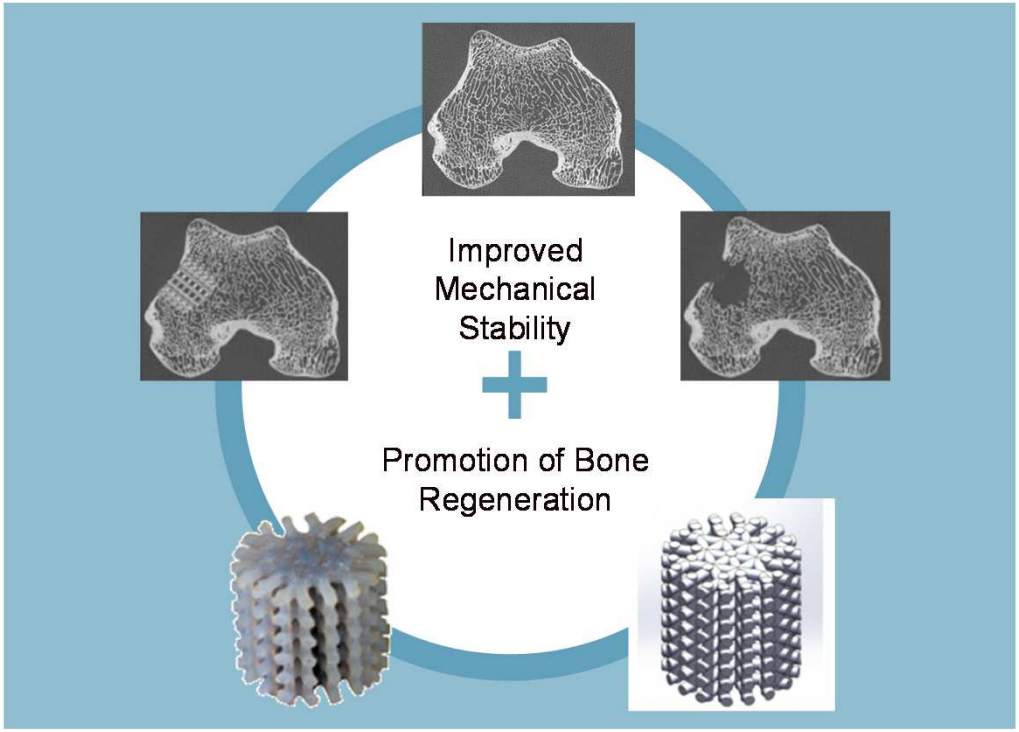


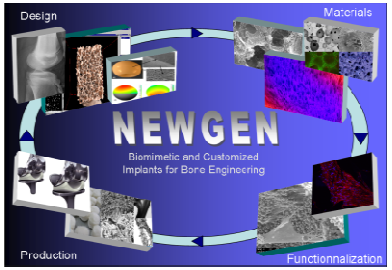
Exemplar Projects- Medical Polymers

DTC- Healthcare Technologies, PhD Project

Bone Scaffolds for Tissue Regeneration:
A 3D-Printing Approach using Tailored Materials

- Fused Deposition Modelling (FDM)
- Clinically approved bioresorbable polymers
  - Bioactive Filler
- Patient-specific geometries

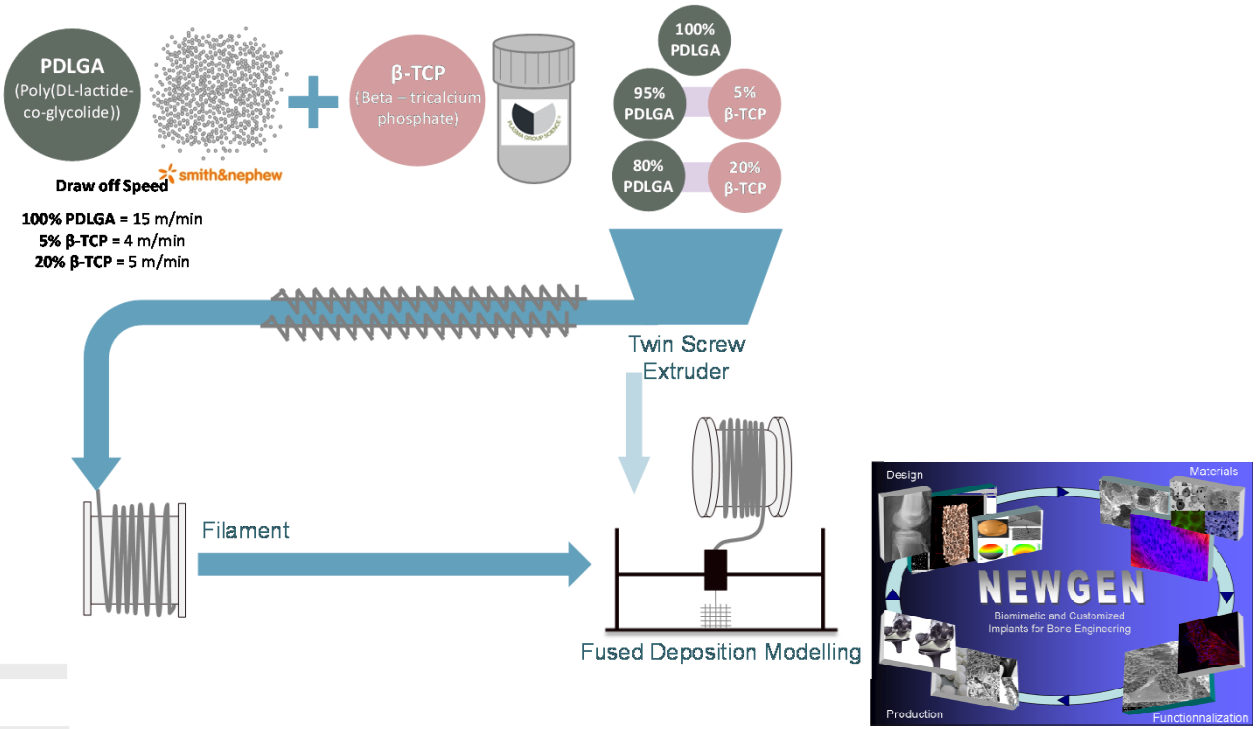




Exemplar Projects- Medical Polymers

DTC- Healthcare Technologies, PhD Project

Bone Scaffolds for Tissue Regeneration: A 3D-Printing Approach using Tailored Materials



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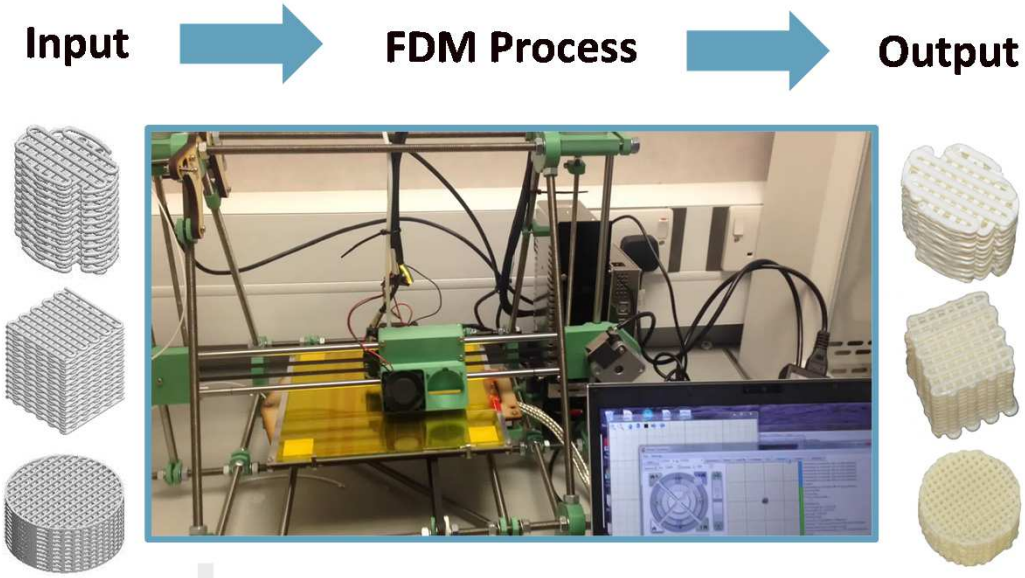
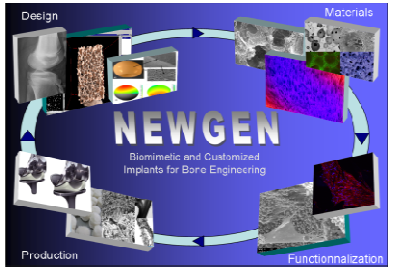
Exemplar Projects- Medical Polymers

DTC- Healthcare Technologies, PhD Project

Bone Scaffolds for Tissue Regeneration: A 3D-Printing Approach using Tailored Materials

- Scaffold design and manufacture





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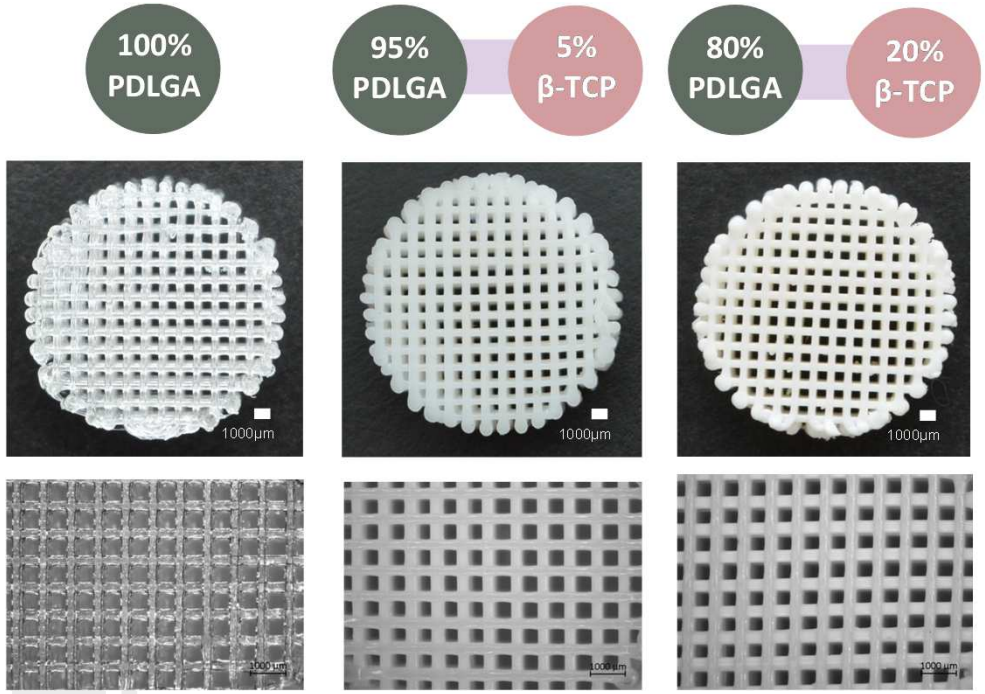
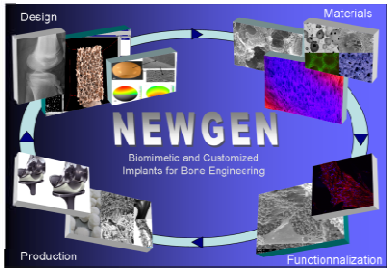
Exemplar Projects- Medical Polymers

DTC- Healthcare Technologies, PhD Project

Bone Scaffolds for Tissue Regeneration: A 3D-Printing Approach using Tailored Materials

- Characterisation of scaffolds





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Exemplar Projects- Medical Polymers

- **DTC- Healthcare Technologies, PhD Project**
  - ***Bone Scaffolds for Tissue Regeneration: A 3D-Printing Approach using Tailored Materials***
  - Ongoing activities

Scaffold Geometry

Degradation Characterisation

Biomechanical Performance

Biocompatibility Investigation

Clinical Relevance