

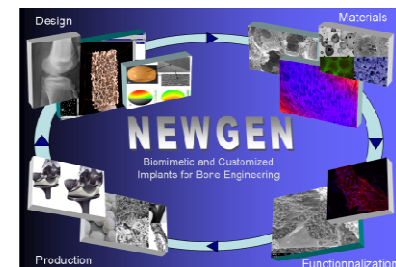


- ✓ **Complete denomination:** Belgian Ceramic Research Centre
- ✓ **Location (city, country):** Mons, Belgium
- ✓ **Director:** Dr. Francis CAMBIER
- ✓ **Contact person in NEWGEN:** Dr. Stéphane HOCQUET
- ✓ **Working Group involvement:** WG2
- ✓ **Staff:** 100 people (PhD, Engineers, Technicians, Administratives), including about 25 in R&D department, and 60 in testing, analysis, consultancy, expertises
- ✓ **Research topics:** materials (from synthesis to final product), environment (for a sustainable development) and processing (from lab to larger scale)
- ✓ **Researchers expertises:** traditional and advanced ceramics, refractory materials, castables, cement phases and glass



BCRC

Belgian Ceramic Research Centre
Avenue du Gouverneur Cornez 4
B-7000 Mons (BELGIUM)



COST Action MP1301

BIOMATERIALS/NEWGEN TOPICS

Materials:

Dense (Al_2O_3 and ZrO_2) and porous (HAP, β -TCP) ceramics

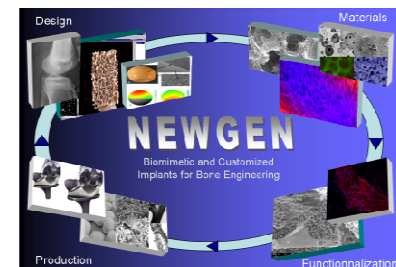
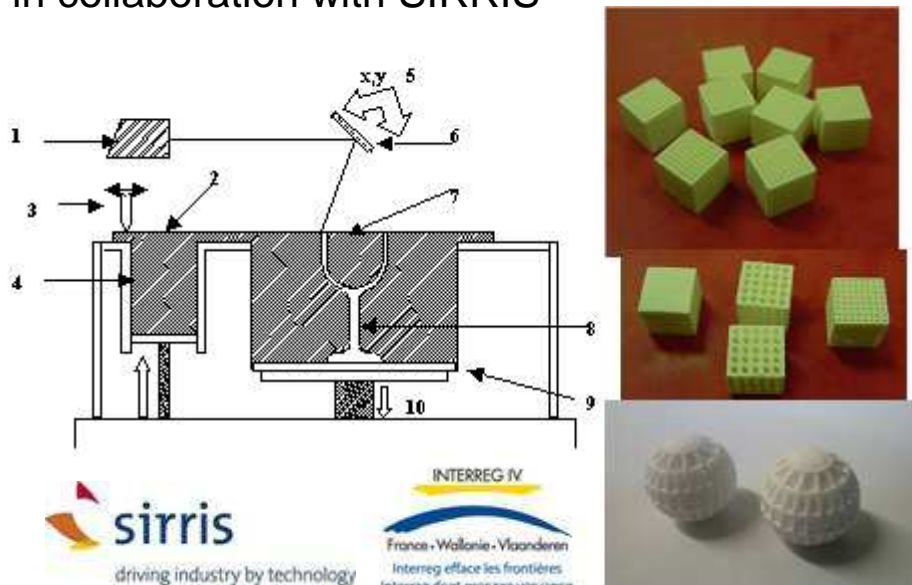
Expertise:

Sintering-densification
Microstructure-properties correlations

Process:

Sintering of green parts with controlled internal structure and complex shape obtained with Optoform equipment – INTERREG IV project, in collaboration with SIRRIS

Scaffold with controlled porosity obtained from replica technique : 1-shaping with PMMA balls, 2-impregnation with ceramic suspension, 3-debinding/sintering (in collaboration with LMCPA-UVHC)



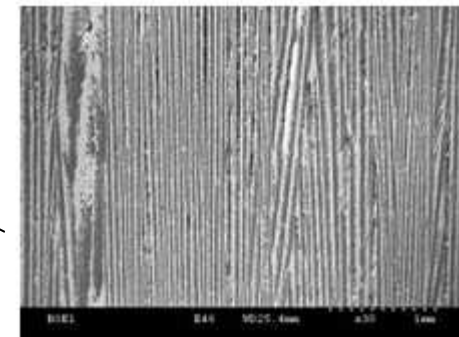
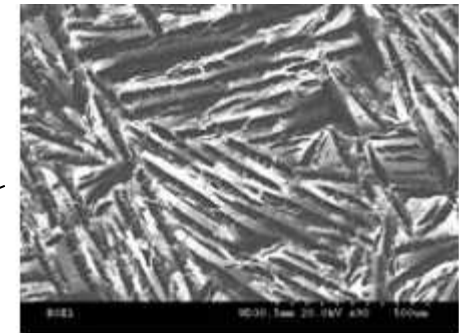
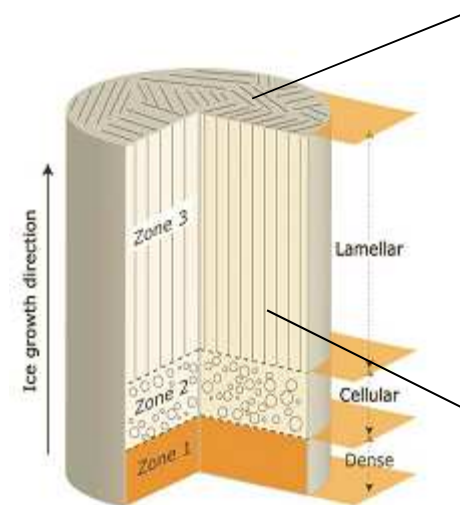
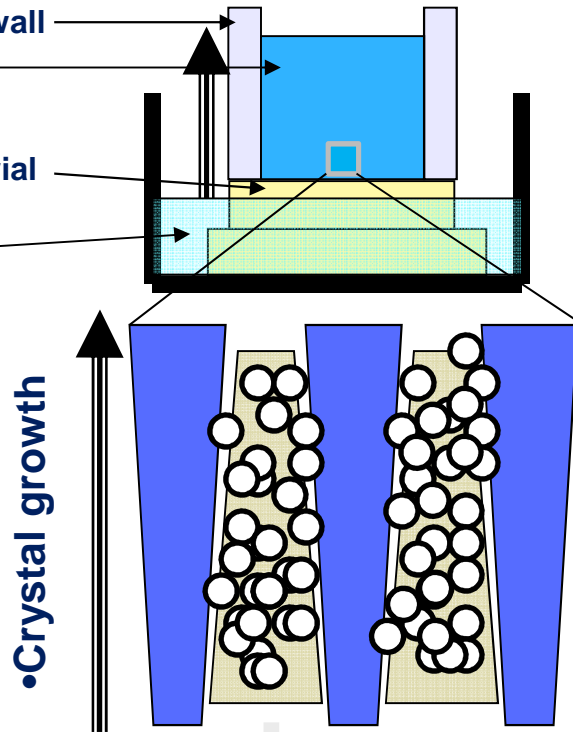
COST Action MP1301



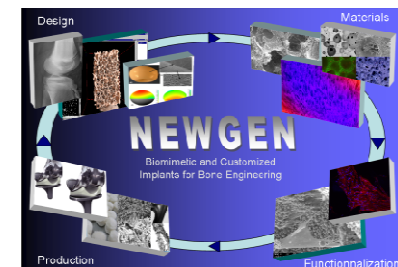
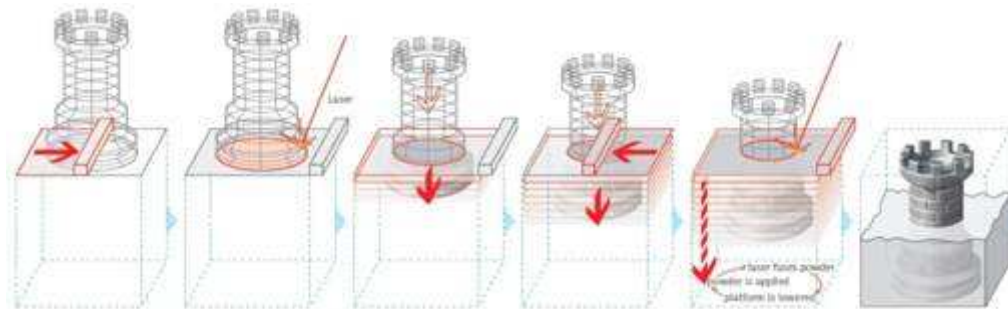
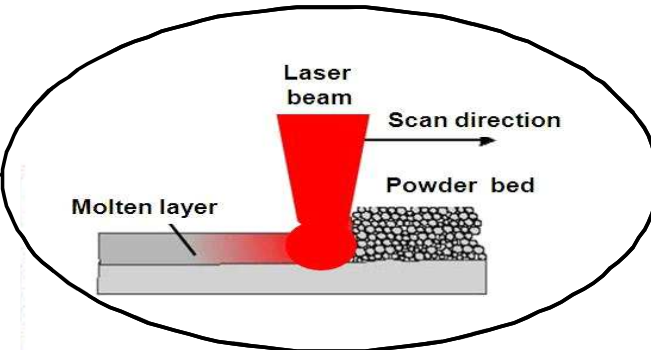
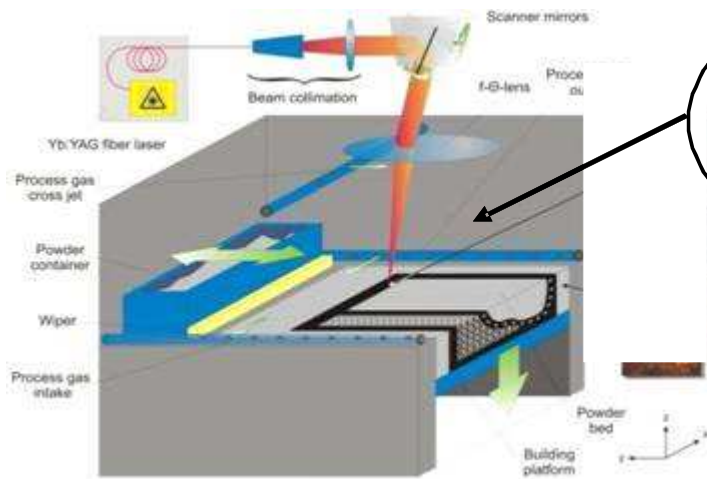
Shaping by Freeze Casting

Method using the oriented freezing of a ceramic suspension in order to obtain green parts with porous lamellae structure

- Mold insulating wall
- Slurry
- Conductive material
- Cooling liquid



Shaping by SLM





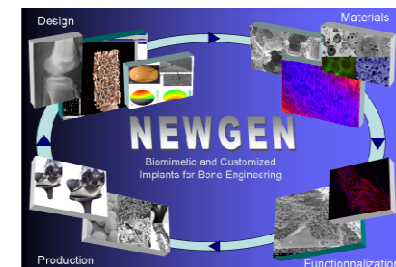
Selective Laser Sintering
(Nd:YAG 200W)



Laser machining
(Nd:YAG 100W)



Laser Cladding



COST Action MP1301

BCRC

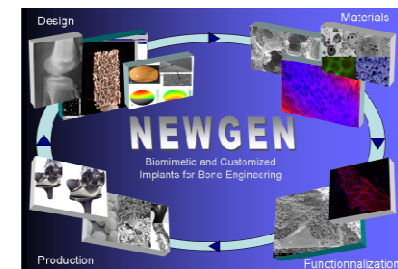
FACILITIES: advanced equipments for densification



Spark Plasma Sintering
From 25mm up to 160mm



Hot Isostatic Pressing
(under inert atmosphere, or up to 20% O₂)



COST Action MP1301

FACILITIES: characterizations

Mechanical and thermal properties

Flexural and compressive strength (RT and HT)

Elastic properties by RFDA (RT and HT)

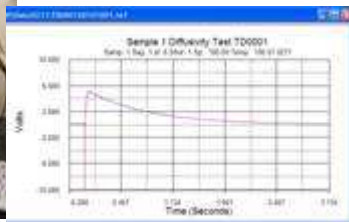
Micro- and nano-scratch testers

Wear resistance (Pion-disk)

(Micro-) hardness

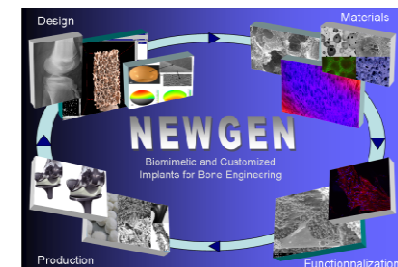
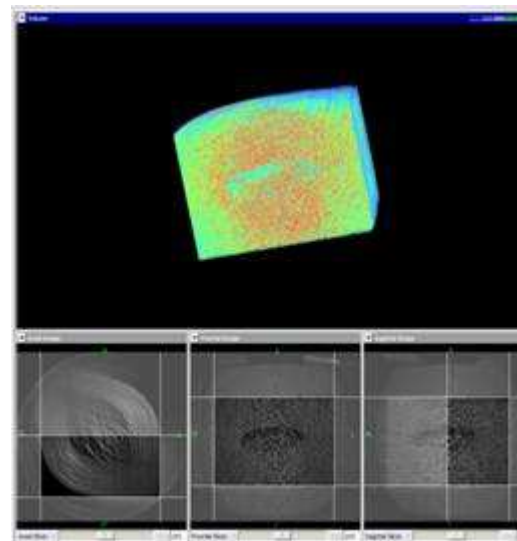
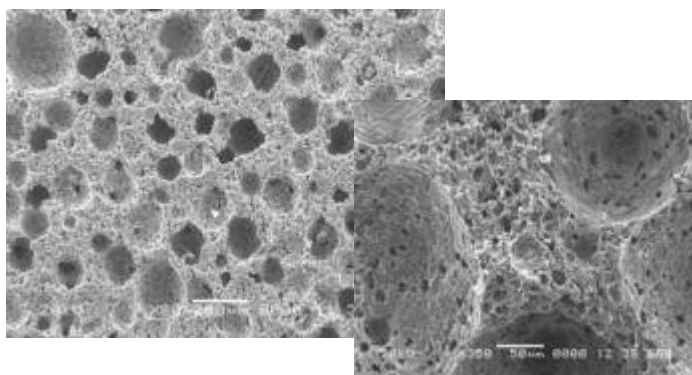


Thermal diffusivity (RT and HT)



(Micro)structure

Imaging: SEM, RX tomography



COST Action MP1301