# CCB

GENERAL PRESENTATION

CENTRO CERAMICO BOLOGNA

➢**Complete denomination**: Centro Ceramico Bologna (CCB)

➢**Location (city, country)**: Bologna, Italy

➢**Director**: Prof. Giorgio Timellini

➢**Contact person in NEWGEN**: Dr. Francesca Prete

➢**Working Group involvment**: WG1

➢**Staff**: 2 Profs, 10 Researchers, 9 Technicians, 7 Admin, 3 Coordinators, 5 Department supervisors, 3 PhD students

➢**Research topics**: traditional and advanced **ceramic materials**

➢**Researchers expertises**: **:** plurydisciplinary team (chemists, geologists, engineers, biologists)

COST
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

CCB
Centro Ceramico Bologna
Via Martelli 26
40139, Bologna - ITALY

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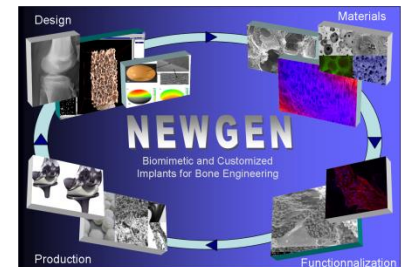
Ceramic materials for dental and orthopaedic applications

CCB research activity regards the **whole production cycle of ceramic materials for dental and orthopedic applications:**

- **Raw materials analysis** (chemical, physical, mineralogical characterization)

- **Synthesis** (cooprecipitations, sol gel, microwave hydrothermal)

- **Shaping** (die pressing, slip casting, pressure slip casting, rheology)

- **Sintering** (conventional and microwave)

- **Final product characterization** (microstructure, surface texture, mechanical tests, optical and electrical tests)
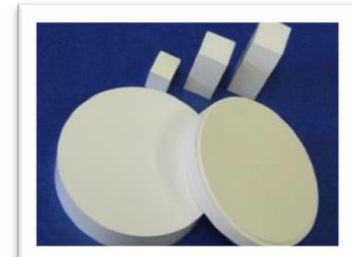
Alumina
Zirconia (Y-TZP)
Alumina-zirconia composites
Glass ceramics
Lithium disilicate
Silicon nitride

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## FACILITIES

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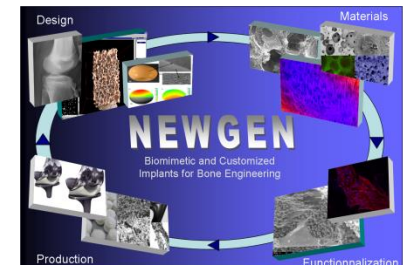
- ICP-OES
- Microwave furnace
- Scanning electron Microscope (SEM-EDS)
- Pressure slip casting
- Optical microscopes
- 3D Optical profiler
- Granulometer
- Surface area analysis BET
- Thermal analysis TG-DTA
- Dilatometer
- Heating microscope
- Rheometer
- Dinamometer
- Vickers hardness
- Reflectance spectrophotometer
- UV-Vis-NIR spectrophotometer
- Spettrometer
- Glossmeter
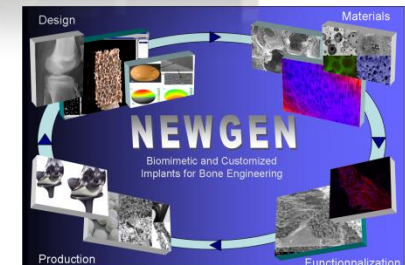- Sourcemeter
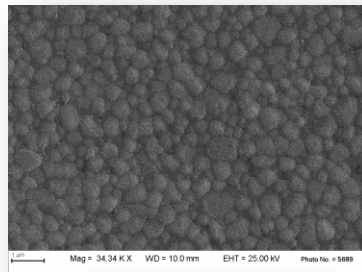

SEM-EDS

ICP-OES

Pressure slip casting (PSC)
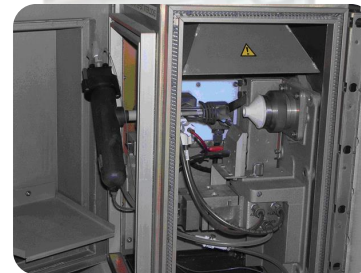
3D Optical profiler

Bending strenght

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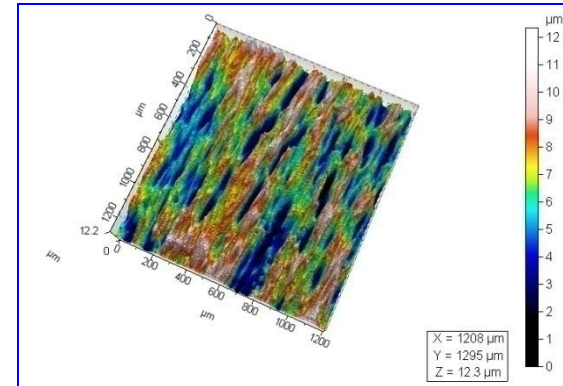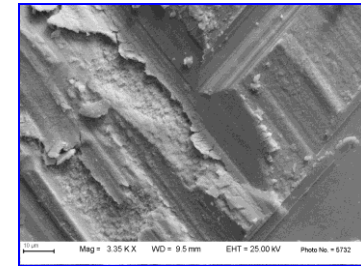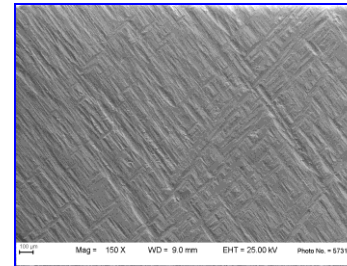COST
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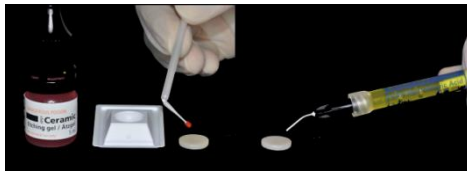
MAIN EXPERTISE

MICROSTRUCTURAL ANALYSIS
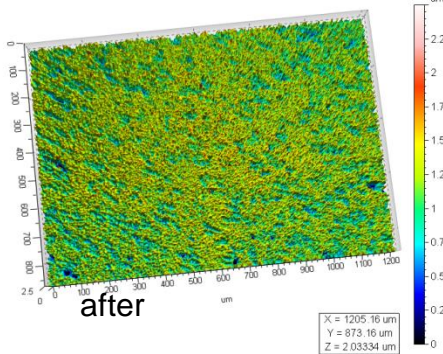### (GRAIN SIZE, SHAPE AND DISTRIBUTION ASTM E112, ISO 13356)
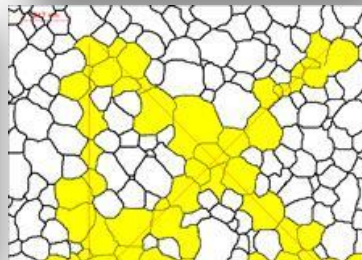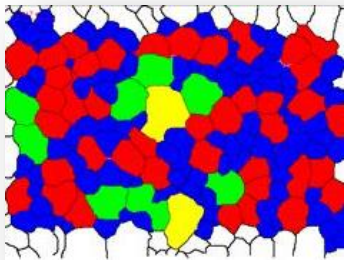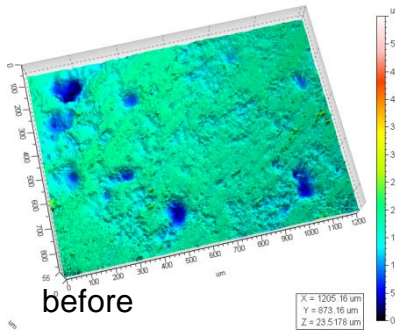

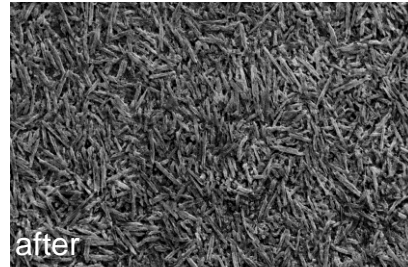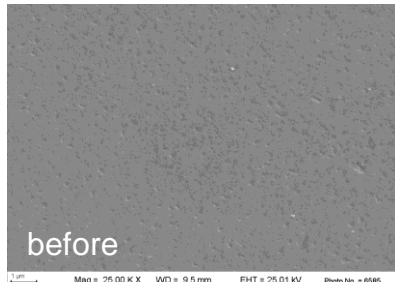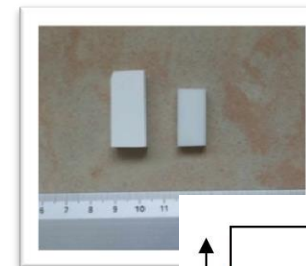## SURFACE MORPHOLOGY ANALYSIS (3D) – effects of mechanical finishing on bioceramics

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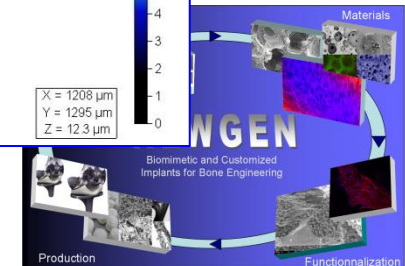
MAIN EXPERTISE

Microstructure, surface morphology and adhesion after chemical etching (lithium disilicate)

before

after

before

after

Microwave sintering

Dental Zirconia presintered blanks

Conventional   Microwave
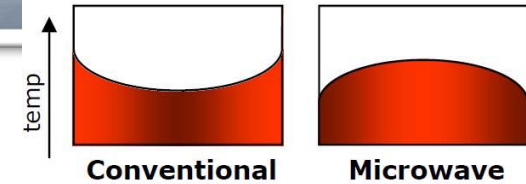
Nano alumina-zirconia Pressure slip casting

NEWGEN
Biomimetic and Customized Implants for Bone Engineering

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