

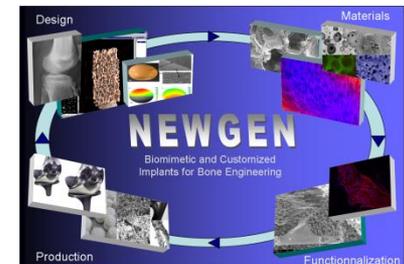
- **Location (city, country):** Lisbon, Portugal
- **Director:** Maria de Fátima Montemor
- **Contact person in NEWGEN:** Catarina Santos- [catarina.santos@estsetubal.ips.pt](mailto:catarina.santos@estsetubal.ips.pt)
- **Working Group involvment:** WG3 (Fatima Montemor; Catarina Santos; Maria João Carmezim; Marta Alves)

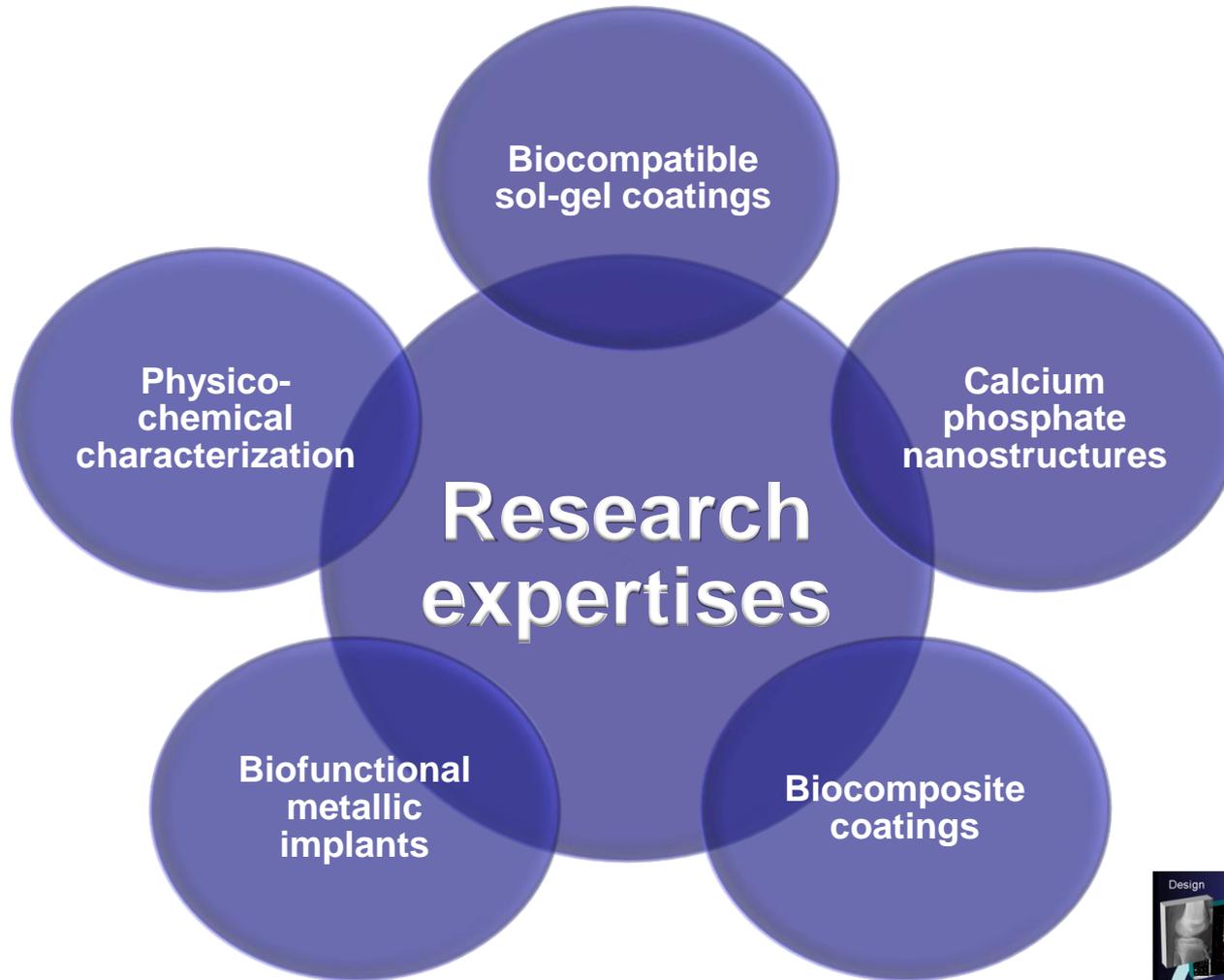
➤ **Staff:** Catarina Santos, Marta Alves, Maria João Carmezim

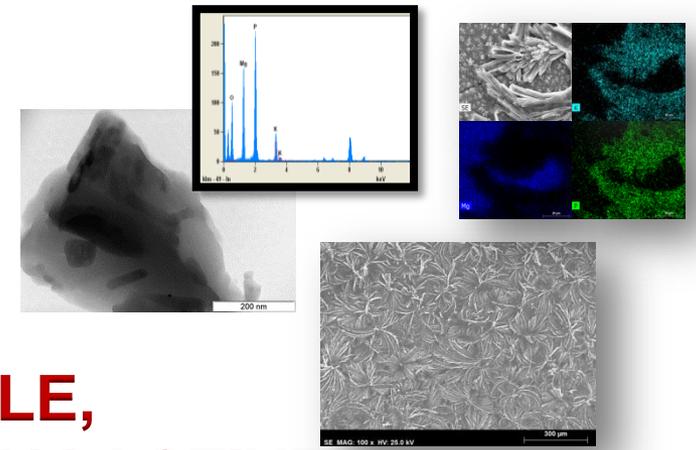
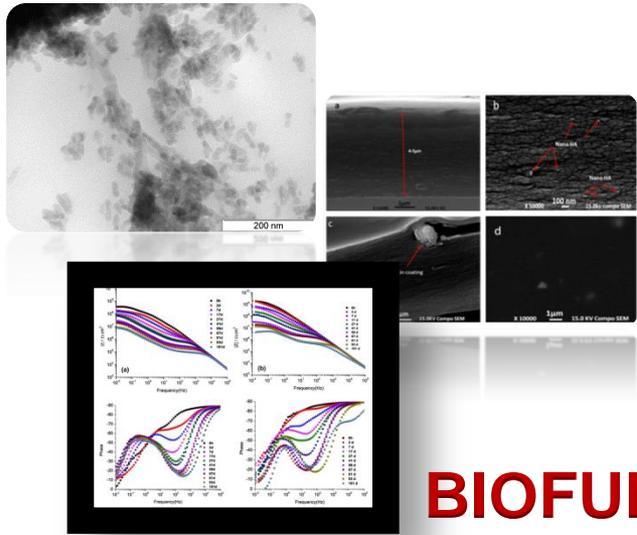
➤ **Research topics:**

Metallic implants; bio-functionalization; bio-coatings; physic-chemical characterization

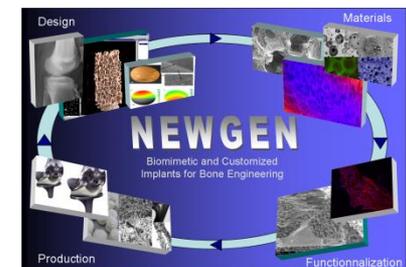
➤ **Researchers expertises:** Biocompatible sol-gel coatings, degradable polymers, biocomposite coatings and bio-functional metallic implants; Synthesis and functionalization of calcium phosphate nanostructures;

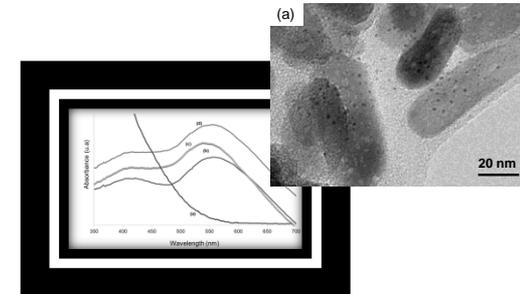
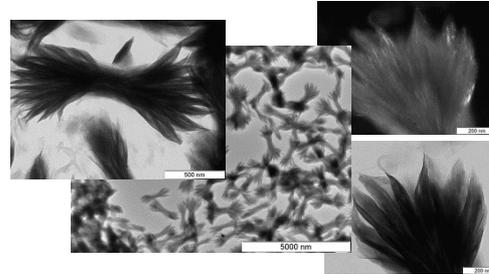
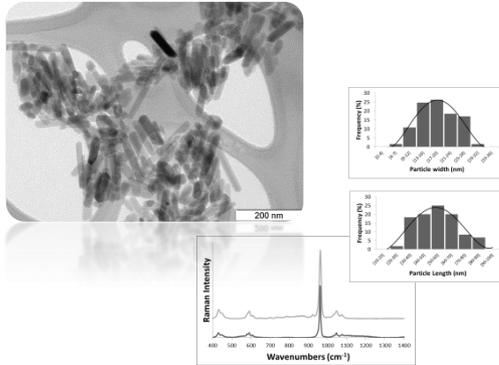




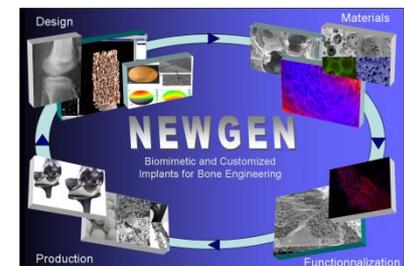
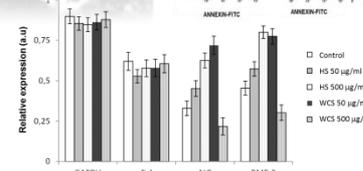
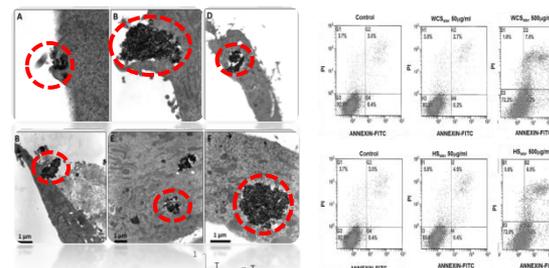
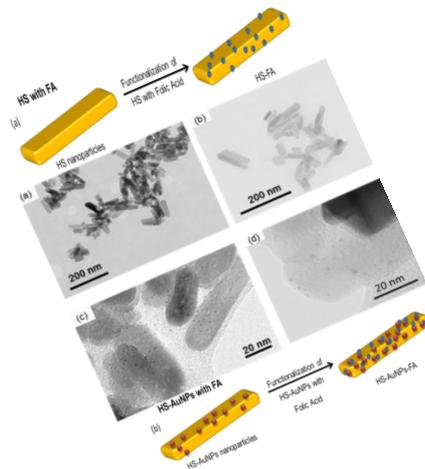
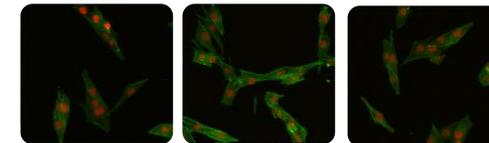


## BIODEGRADABLE, BIOFUNCTIONAL AND BIOACTIVE NANOSTRUCTURED COATINGS





## SYNTHESIS AND FUNCTIONALIZATION OF CALCIUM PHOSPHATE NANOPARTICLES



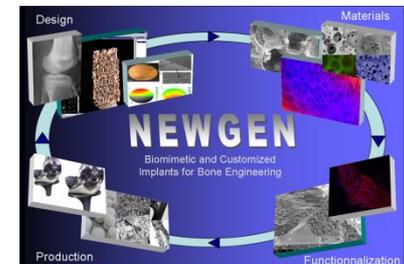
PHYSICOCHEMICAL PROPERTIES	CSSE CHARACTERIZATION FACILITIES
Size (distribution)/ Shape /Agglomeration and aggregation condition	FEG-SEM; TEM; AFM;
Crystalline structure	XRD; Electron diffraction
Surface chemistry/charge/area	XPS; AES; $\xi$ -potential; BET; Raman confocal; FTIR
Stability/dissolution	ICP; UV-Vis; HPLC
“In-Situ” monitoring of corrosion activity	EIS; SVET; SECM; LEIS

FEG-SEM- Field emission scanning electron microscopy; TEM-Transmission electron microscopy; AFM-Atomic force microscopy; XRD- X-Ray diffraction; XPS, X-ray photoelectron spectroscopy; AES- AES, Auger electron spectroscopy ; BET- nitrogen adsorption/desorption isotherm; FTIR- Fourier transform infrared spectroscopy, ICP- inductively coupled plasma, HPLC- High Performance Liquid chromatography; EIS- Electrochemical Impedance Spectroscopy; Scanning SVET-Vibrating Electrode Technique, SECM- Scanning Electrochemical Microscopy; LEIS- Localized Electrochemical Impedance Spectroscopy

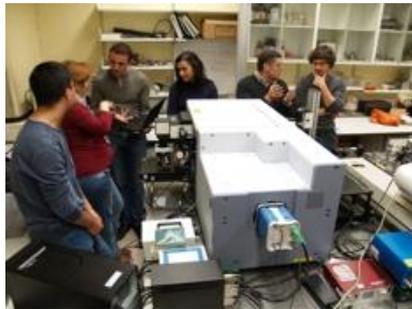
## CSSE CHARACTERIZATION FACILITIES



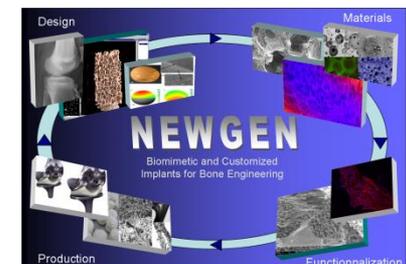
- JEOL 7001F FEG-SEM with Oxford light elements EDS detector and EBSD detector;
- SEM: Hitachi S2400 with Rontec standard EDS detector
- Hitachi H8100 TEM with ThermoNoran light elements EDS detector;
- Ion Mill: Gatan DuoMill 600DIF;
- Atomic force microscopy (including electrochemical) laboratory.
- Nanoindentation and sub micron self healing studies.



# CSSE CHARACTERIZATION FACILITIES



- Two systems for Scanning Vibrating Electrode Technique (SVET) and one Selective Ion Electrode Technique (SIET);
- Scanning Electrochemical Microscope (SECM). Scanning Kelvin Probe (SKP);
- XPS-Auger, Microlab 310 F (Vg Scientific);
- Scanning Raman system, model LabRAM HR Evolution;
- Nicolet 5700 FTIR spectrometer;



**COST Action MP1301**