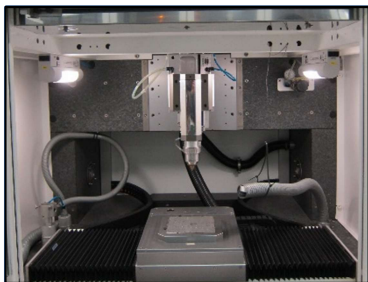


## Advanced Laser Based Manufacturing Group

The UPM Advanced Laser Based Manufacturing Group focuses on the development and industrial transfer of advanced process using state-of-the-art laser sources and irradiation systems (specially those using pulsed lasers). With a wide experience in micro and nanofabrication applications using laser technology.

The group has current activity in strategic industrial sectors like energy (specially photovoltaics), electronics, automotive, biotechnology, regenerative medicine, etc.

### Facilities and infrastructures



### Micromachining Laser Stations

#### □ AB 200- UV nano-picoseconds:

- Spectra Physics Pulseo (DPSS Nd:YVO<sub>4</sub>, 20 ns, 20W @ 100kHz).
- Spectra Physics Vanguard (DPSS Nd:YVO<sub>4</sub>, 10 ps, 80 MHz, 350 mW).

#### □ ML 100- UV nanoseconds:

- ATL Laser Lasertechnik SP300i (KrF excimer 248 nm, 7ns, 5 W@300 Hz).
- Spectra Physics HIPPO (DPSS Nd:YVO<sub>4</sub> 355 nm, 15 ns, 5 W @ 50 kHz).

#### □ INNOLAS Lumera Superapid-picoseconds:

- DPSS Nd:YVO<sub>4</sub> 1064 nm/ 532 nm/ 355 nm 8 ps.
- 18W @1064 nm / 8W @ 532 nm / 4W @ 355 nm.

### Appolo Hub Workbench

- Application Laboratory for Equipment Assessment in Laser Based Manufacturing.

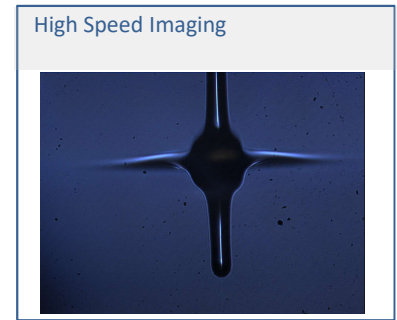
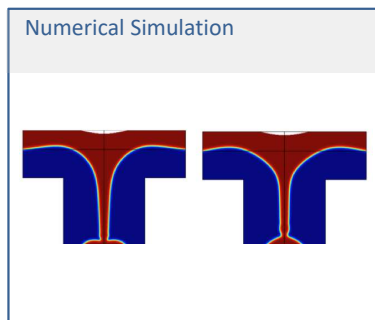
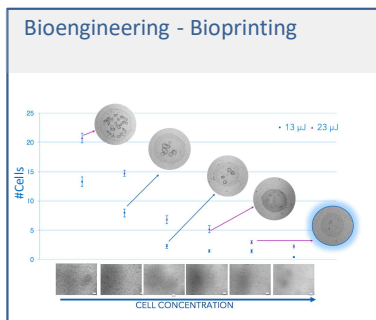
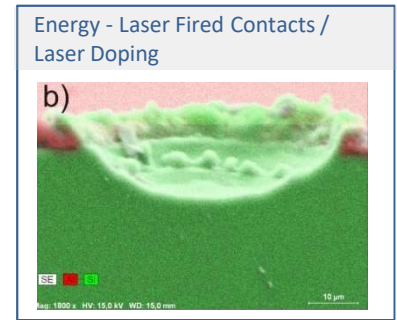
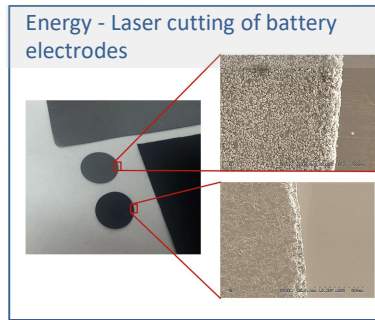
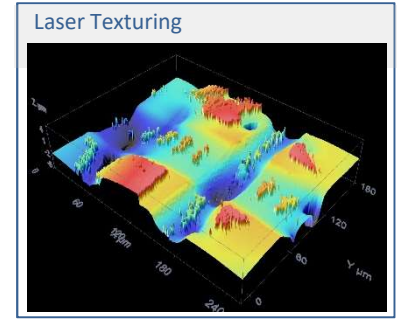
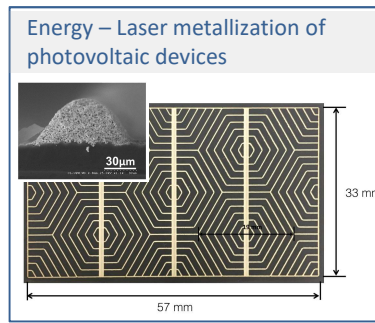
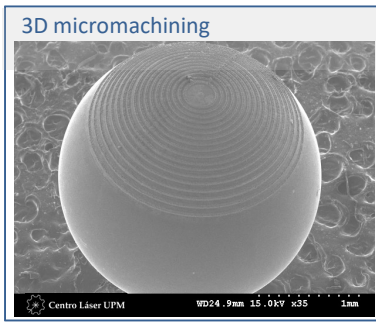
### Biological Lab Facility for Laser Bioprinting

### Microscopy Facilities

- Raman Microscopy Renishaw inVía.
- Confocal Microscope Leica DCM 3D.
- Scanning Electron Microscopy Hitachi 3000 N (SEM-EDX).



## Research areas associated with Big Science



## Main projects in Big Science

- FP7 **APPOLO** Hub of Application Laboratories for Equipment Assessment in Laser Based Manufacturing. <sup>SEP</sup>European Project FP7-2013-NMP-ICT-FOF. 2013-2017. <sup>SEP</sup>Coordinator: G. Raciukaitis (FTMC – Lithuania).

## Software, tools or licenses to be applied to Big Science

- **COMSOL** software.
- **High Speed Imaging System** (25 ns resolution).