



Hub of Application Laboratories for Equipment
Assessment in Laser Based Manufacturing



Supported by the
European
Commission



APPOLO Project Presentation

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www.appolo-fp7.eu

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CENTER
FOR PHYSICAL SCIENCES
AND TECHNOLOGY

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appolo

<http://appolo-fp7.eu/>



**CENTER
FOR PHYSICAL SCIENCES
AND TECHNOLOGY**



LUT
Lappeenranta
University of Technology



BIOAGE



**MONDRAGON
ASSEMBLY**



Materials Science & Technology



POLITÉCNICA



Flexible Solar Modules



Bern University
of Applied Sciences



ABENGOA SOLAR



Key Technology Ventures



ultrafast pulsed laser machining



**CENTRO
RICERCHE
FIAT**



Daetwyler
Graphics

supported by

■ establish and coordinate connections between

- **end-users** with demand for laser technologies for (micro)fabrication;
- knowledge accumulated in **application laboratories** of research institutes and universities;
- **laser equipment manufacturers** for integration, lasers, beam control and guiding, software, etc.

&

■ facilitate

- faster validation of process feasibility
- adaptation or customization of technology & equipment for manufacturing conditions

Hub of laser application laboratories

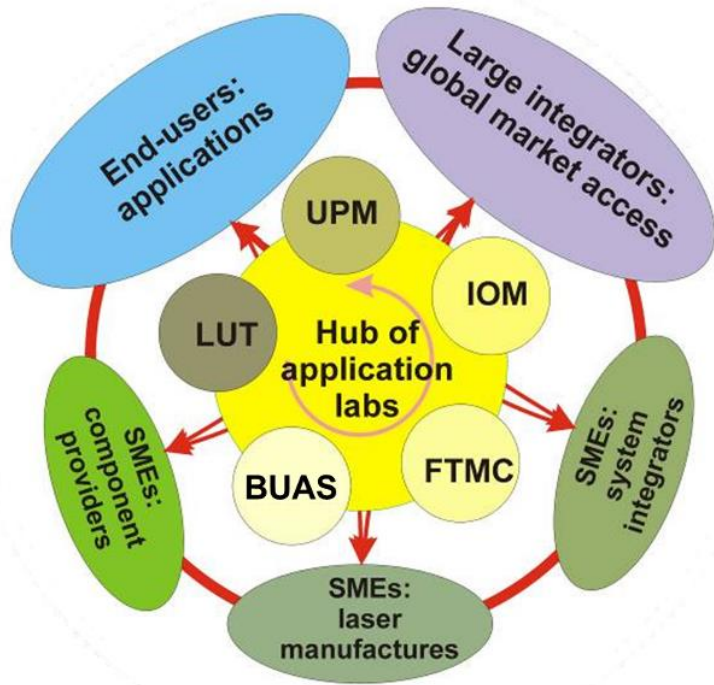
Core of the consortium –

laser application laboratories:

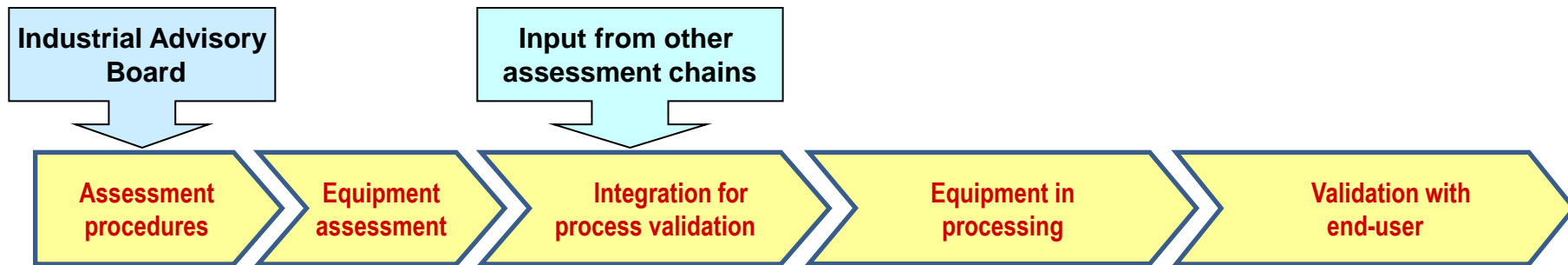
- around Europe;
- connected to a virtual hub, in order to
- accumulate knowledge and infrastructure
- promote the easy-to-access environment
- develop and validate of laser-based technologies

in

the **8+** equipment assessment value chains:



New partners & assessment experiments will selected after
the Open Competitive Call in the second year

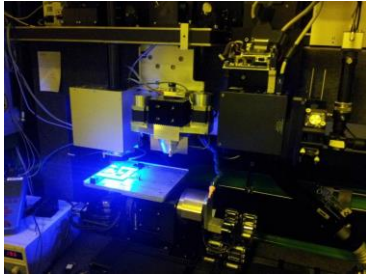


- **Thin film CIGS solar cell scribing with picosecond lasers:**
 - Novel lasers, scribing concepts, intelligent laser beam control & integration into machines

- **Laser surface texturing:**
 - New laser, high speed & precision laser texturing & dedicated nanostructures for surface functionalisation;
 - Integration in to machines for automotive and printing/decorative applications

- **Laser patterning for flexible 3D electronics:**
 - New patterning concepts, 3D patterning; Integration with other techniques

- Parallel activities on **sensing and monitoring techniques** for processing and validation.



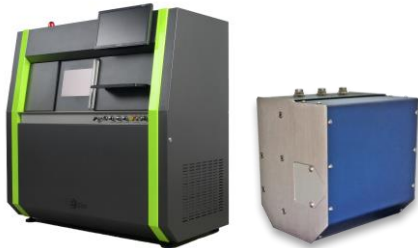
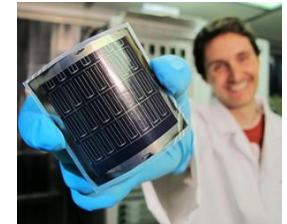
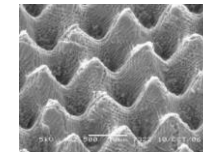
END-USERS:

- *Centro Ricerche Fiat SCPA*
- *Daetwyler Graphics AG*
- *Abengoa Solar New Technologies SA*
- *Mondragon Assembly Sociedad Cooperativa (SME)*
- *Sächsische Walzengravur GmbH*
- *Bioage SRL (SME)*
- *Flisom AG (SME)*
- ...



APPLICATION LABORATORIES:

- *Center for Physical Sciences and Technology*
- *Leibniz-Institut für Oberflächenmodifizierung e.V.*
- *Bern University of Applied Sciences*
- *Lappeenranta University of Technology*
- *Universidad Politécnica de Madrid*

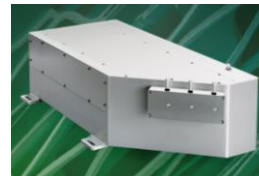


SUPPLIERS:

- *Ekspla UAB (SME)*
- *Time Bandwidth Products AG (SME)*
- *OneFive GmbH (SME)*
- *Next Scan Technology BV (SME)*
- *Amsys Ltd. (SME)*
- *ELAS UAB (SME)*
- *Lightmotif BV (SME)*
- ...



Picosecond



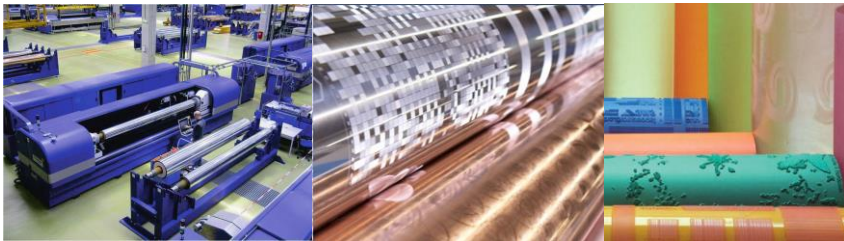
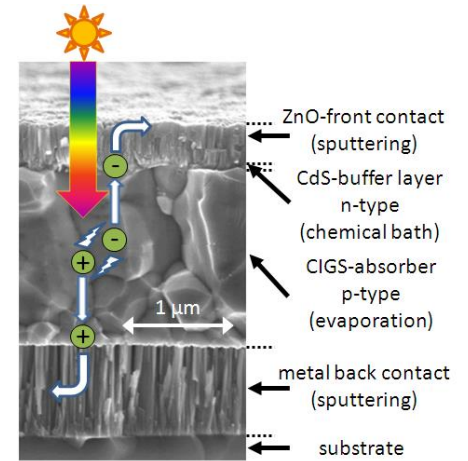
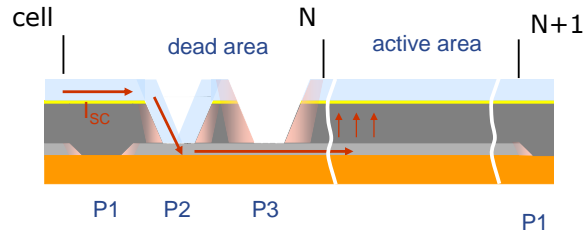
MATERIALS:

- *Eidgenössische Materialprüfungs- und Forschungsanstalt*

IPR MANAGEMENT & EXPLOITATION

- *engage AG (SME)*

■ Thin film CIGS solar cell scribing with picosecond lasers



■ Laser surface texturing

Current Enviromental monitor units



APPOLO concept



■ Laser patterning for flexible 3D electronics and photovoltaics



■ Parallel activities on sensing and monitoring techniques for processing and validation

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