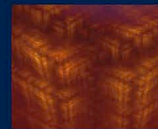




ALIANZAS ESTRATÉGICAS: UN PROPUESTA EFICAZ DE TRANSFERENCIA DE TECNOLOGIA

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imdea
materiales



"Si un país no puede competir en costes, debe hacerlo en innovación"
(Prof. B. Cantor, Vice-Chancellor, University of York. El Economista, 15-06-09)

- The indicators of research production in Spain (publications, citations, international presence of Spanish researchers, impact) have improved dramatically in the last decades.
- Spanish science occupies a relevant place in the international arena.
- Our ability to carry out technology transfer to Spanish companies is extremely poor (particularly when compared with our scientific potential)

- Promote the interest of scientists in scientific problems useful to society.
- Cultural change in companies: from service providers to technology development.
- Create and support the right models to foster technology transfer.

- UNITED STATES OF AMERICA:
 - Spin-off companies

- JAPAN
 - Research laboratories of large industrial corporations

- GERMANY
 - Strategic alliances between companies and three networks of research laboratories (Leibniz, Fraunhofer, and Max Planck).

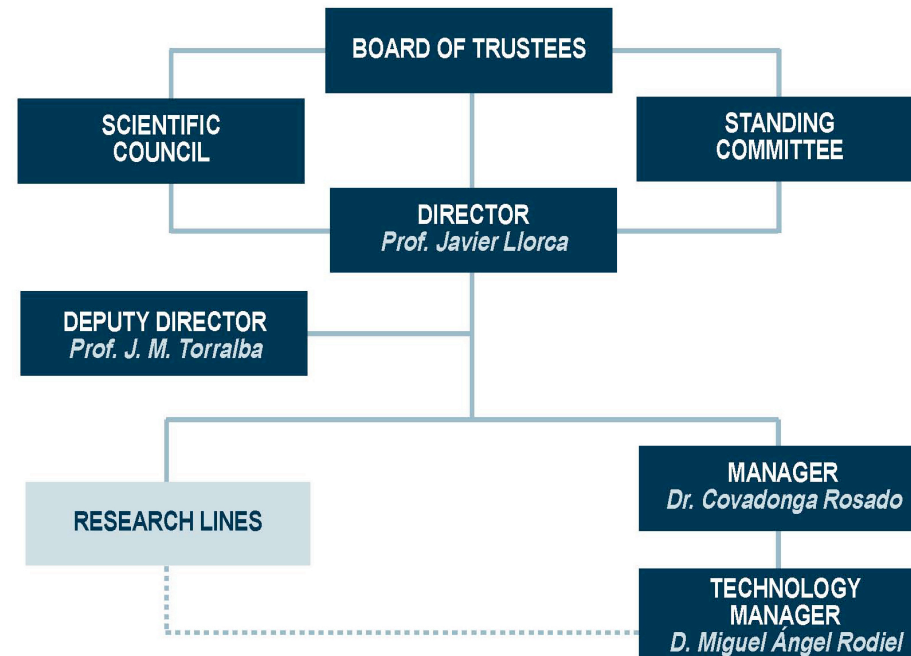
IMDEA is a new, efficient and flexible institutional framework promoted by the Comunidad de Madrid to:

- Perform research of excellence
- Carry out technology transfer to the industrial sector to improve competitiveness
- Attract talented researchers to the region of Madrid

IMDEA initiative comprises eight independent research institutes in different areas (water, food, social sciences, energy, materials, nanoscience, networks and software).

IMDEA-materials is aimed at carrying out research of excellence and technology transfer in Materials Science and Engineering.

- **Legal status:** foundation (non-profit private organization)
- **Management Structure:**



- **Board of Trustees:** Comunidad de Madrid (4), research institutions of Madrid (4), industrial enterprises (5), international scientists (5) and independent experts (1).
- **Scientific Committee:** Scientists (10 to 20) with an international reputation in different areas of Materials Science and Engineering.

■ Applied research

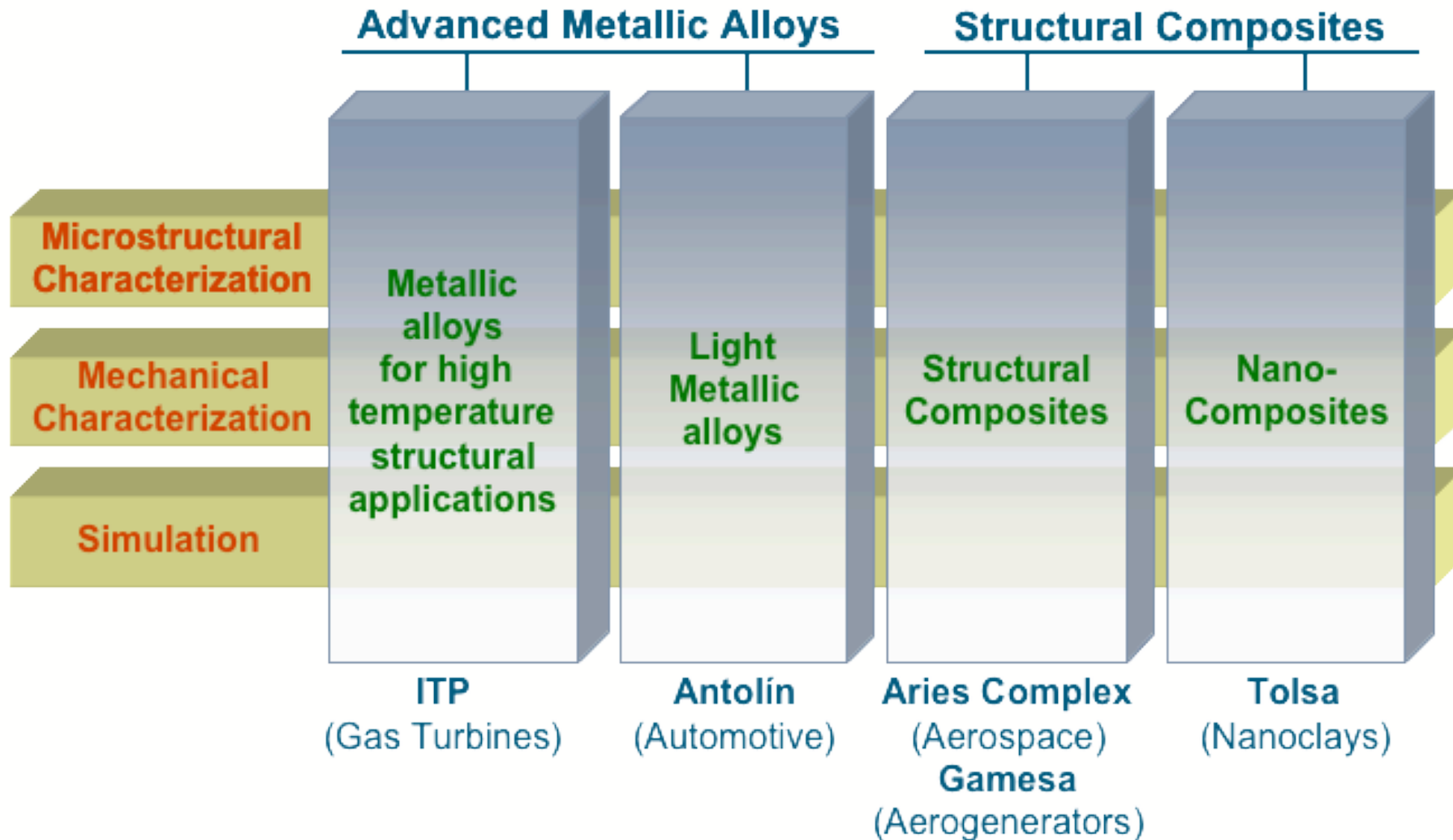
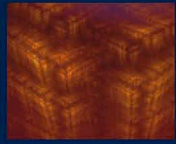
(encompassing the midterm interest of industrial partners)

- Processing techniques, design and application of advanced structural materials in the aerospace, automotive and energy generation sectors

■ Basic research

(topics in the forefront of scientific and technological research linked to the applied research lines to provide long-term technological leadership)

- Hybrid structural materials on different scales of integration
- Smart structural materials
- Tailored materials (biomimetics, microstructural optimization, self-assembly)





- **Objective:** Attract 100 talented researchers at all levels (senior, junior, post-doctoral and graduate students) to carry out research of excellence and technology transfer along seven main research lines in an international environment.

- **Means**
 - State-of-the-art research facilities
 - Multidisciplinary research environment
 - Support of technical staff
 - Efficient and flexible management structure
 - Flexible retribution scheme

Infrastructures

■ Provisional sites:

- 400 m² of completely renovated facilities at the E. T. S. de Ingenieros de Caminos for management, researchers (up to 20) and 100 m² of laboratory.
- 280 m² of laboratory at the Leganés Technological Park (Carlos III university).

■ Final site:

- Technological Park of the UPM in Getafe within Tecnogetafe.
- Excellent links to other research centers in the area (FIDAMC, Tecnofusión)
- New building with space for offices (2500 m²), research laboratories (4400 m²), common facilities (2200 m²) and management (570 m²) available in December 2010.

Main research infrastructures

■ Laboratories

- Processing of nanocomposites (289 k€)
- Processing of advanced structural materials (2750 k€)
- Chemical and microstructural characterization (1965 k€)
- Micro- and nano-mechanics (1045 k€)
- Mechanical characterization (580 k€)
- Computational materials science (355 k€)
- Machine workshop (300 k€)

■ Associated Laboratories

- Department of Materials Science (UPM)

International calls to recruit Senior and Junior researchers

- **IC2007:** 82 applications were received from 18 countries.
 - 4 senior and 6 junior researchers were selected by the Scientific Council.
 - 4 researchers (2 senior and 2 junior) joined IMDEA-materials.

- **IC2008:** 120 applications were received from 30 countries.
 - 3 senior and 6 junior researchers were selected by the Scientific Council.
 - 6 researchers (2 senior and 4 junior) have already joined IMDEA-materials.

20 researchers (5 senior, 7 junior, 3 postdoc, 5 predoc) from 9 countries

Research infrastructures (2008)

- **Processing of fiber-reinforced composites** (Pultrusion, RTM, infiltration, hot-press, etc.)
- **X-ray computer-assisted tomography scanner**
- **Low-vacuum SEM with mechanical testing stage**
- **High performance computer cluster**

Research infrastructures (2009)

- **Thermo-mechanical processing of metallic alloys** (Gleeble 3800)
- **Casting facility for metallic alloys and intermetallics**
- **Mechanical testing equipment**
- **Electrospinning**

Current Research projects

■ Virtual testing of composites:

- 2 industrial projects (Airbus)
- 1 ERA-NET MATERA Project (Defcom)
- 1 EU 7thFP project (Maaximus)

■ Nanocomposites: 1 EU 6thFP project (Interface)

■ Materials for electronics:

- 1 industrial project (INTEL)
- 1 ERA-NET MATERA Project (Engage)

■ High performance fibers: 1 industrial project (Future Fibres)

■ Processing of Mg alloys: CENIT Project with Grupo Antolín (MAGNO)

■ Processing of Composites: CENIT Project with Airbus, Aries-Complex & EADS Casa (ICARO)

Dissemination of Results

■ Publications:

- 20 articles published in SCI Journals (Adv Mat, Mod Sim Mater Sci Engn, Acta Mater, Comp Sci Tech, Int J Fract, Sensors Actuators B, J Appl Phys, etc.)
- 5 articles in Conference Proceedings
- 1 chapter in Book

■ Conferences:

- 10 invited lectures in International Conferences
- 10 lectures at universities and research centers (Oxford university, Imperial College, NASA Langley, Austrian Academy of Sciences, University of Texas at Austin, etc.)

■ Patents:

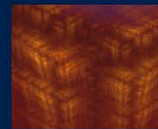
- 1 patent

Proposals under review

- 20 research proposals submitted (plus 5 to be submitted) since January 1st.
- **Type:** European (12), National (12), Regional (1)
- **Funding body:** EU (4), European Space Agency (2), ERA-NET (6), MICINN (9), CDTI (3), Comunidad de Madrid (1)
- **Research topics:**
 - Mg (2), TiAl intermetallics (2), Superalloys (1), Nanostructured metals (2)
 - Structural Composites (4), Nanocomposites (2), morphing materials (2)
 - Simulation (4), Nanomechanics (1), Powder metallurgy (1), others (2)



**IMDEA Materials: Encompassing
Research of Excellence and
Technology Transfer**



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