MULTISCALE DESIGN OF ADVANCED MATERIALS

R&D PROGRAMS OF THE MADRID REGIONAL GOVERNMENT: TECNOLOGÍAS 201

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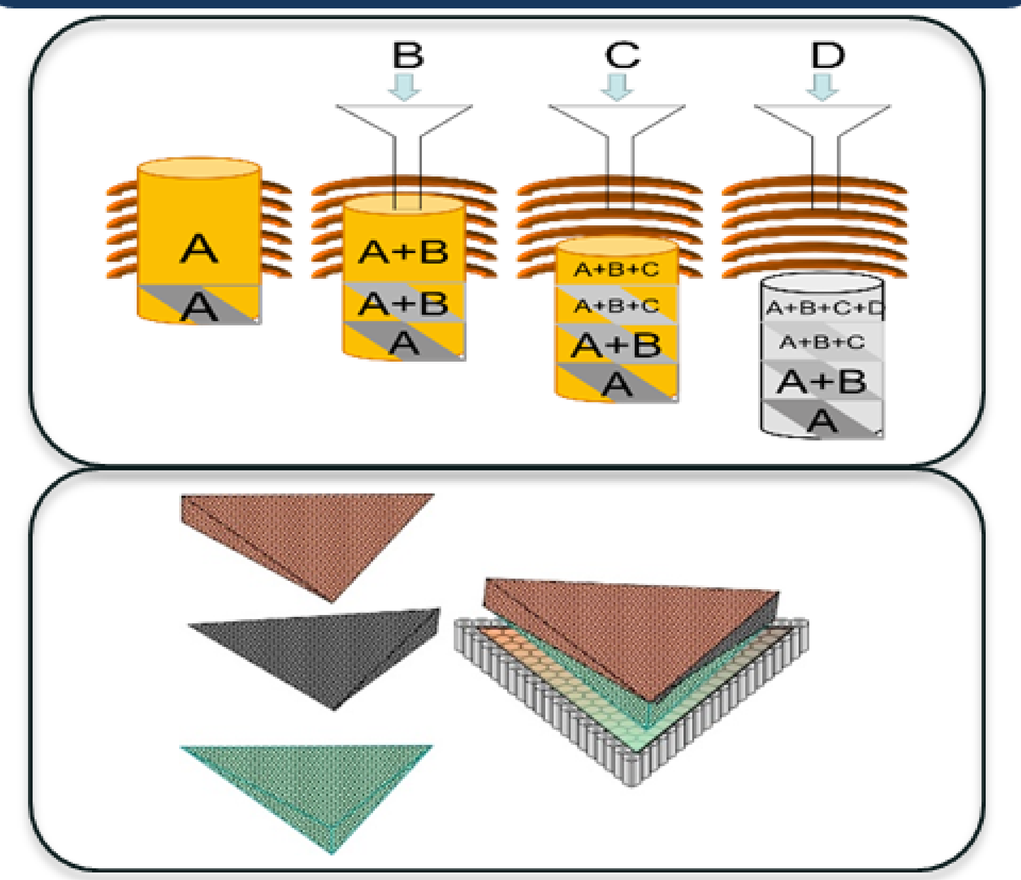
THE DIMMAT PLATFORM IS SUPPORTED BY THE MADRID REGIONAL GOVERNMENT (CM) AS A PIONEERING TECHNOLOGICAL OPPORTUNITY FOR DEVELOPING A NOVEL MATERIALS INNOVATION METHODOLOGY THAT WILL LEAD TO A SIGNIFICANT REDUCTION OF THE TIME AND COST REQUIRED TO FABRICATE NEW PRODUCTS BASED ON ADVANCED MATERIALS .

The **global objective** of DIMMAT is to leverage the complementary capabilities of 7 research groups of Madrid in order to **develop a design methodology for advanced materials** (mainly focused in metallic alloys and polymer-based composites) **by integrating multiscale materials modeling tools and combinatorial processing methods.**



HIGH THROUGHPUT CASTING TECHNIQUES THAT ALLOW FABRICATING A WIDE ARRAY OF BULK COMPOSITIONS IN ONE SINGLE OPERATION ARE BEING PUT IN PLACE.
(TOP IMAGE ABOVE: 1D LIBRARY GENERATION BY ADDITIVE ALLOY MELTING; BOTTOM IMAGE ABOVE: 2D LIBRARY GENERATION)

PARTNERSHIP

THE DIMMAT CONSORTIUM EXPLOITS THE SYNERGIES OF A TEAM FORMED BY 7 ACADEMIC RESEARCH GROUPS (MATERALIA-CSIC, ICMM-CSIC, UCM, UPM-MMEAN, UPM-IFN, UC3M, IMDEA-DM), TWO REGIONAL LABORATORIES (PROCAMAT-IMDEA AND NANOMEC-IMDEA), AND 10 COMPANIES (AIRBUS, GRUPO ANTOLÍN, ITP, NANO4ENERTY, ABENGOA, SANDVIK, ACERINOX, FERROATLÁNTICA, AMES, GERDAU).

ACADEMIC PARTNERS

ASSOCIATED COMPANIES

COORDINATING GROUP : IMDEA Materials (C/ Eric Kandel, 2, 28906 Getafe, Madrid)
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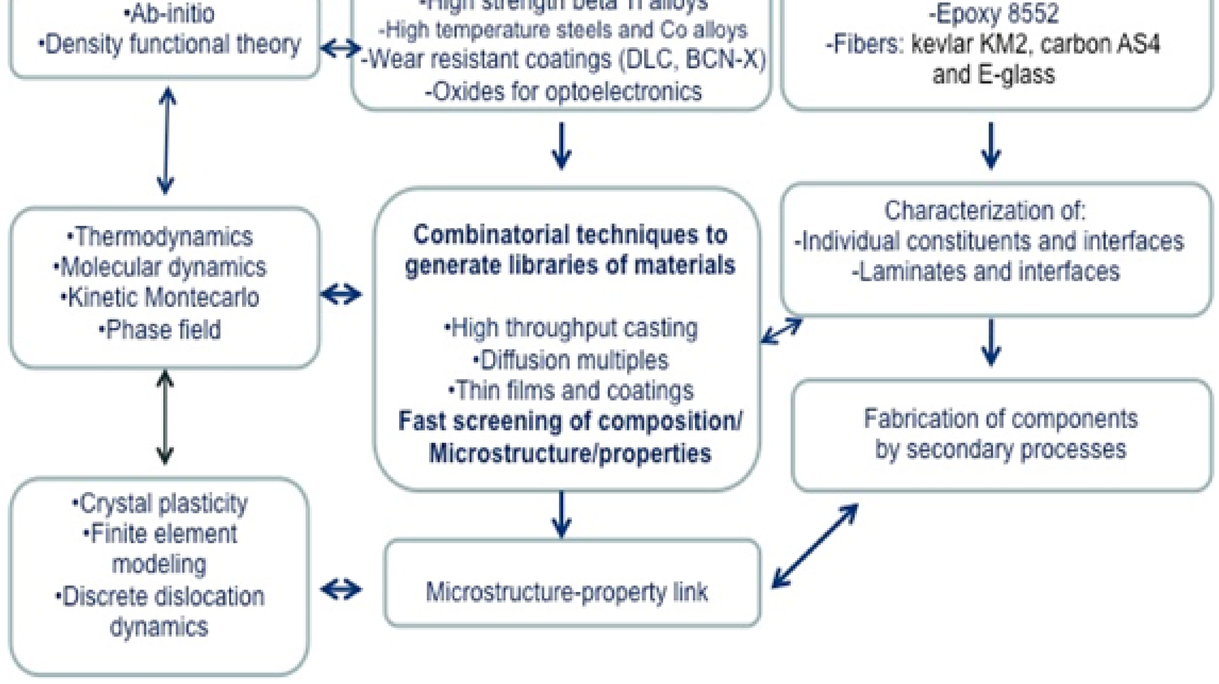
THE HIGH MULTIDISCIPLINARITY OF THE DIMMAT TECHNOLOGY PLATFORM PROVIDES A SUITABLE FRAMEWORK TO ACHIEVE THE TRAINING OBJECTIVE OF THE PROGRAM ORIENTED TO A COMPREHENSIVE EDUCATION OF NEW SPECIALISTS.

GOALS AND OBJECTIVES

1. DESIGN OF BETA-TITANIUM ALLOYS BY LIBRARY GENERATION BY DIFFUSION MULTIPLES..
2. DESIGN OF NOVEL HIGH TEMPERATURE STEELS BY THE GENERATION OF LIBRARIES OF MACROSCOPIC SAMPLES BY HIGH THROUGHPUT CASTING TECHNIQUES.
3. DESIGN OF NOVEL HIGH TEMPERATURE COBALT ALLOYS BY THE GENERATION OF LIBRARIES OF MACROSCOPIC SAMPLES BY HIGH THROUGHPUT CASTING TECHNIQUES.
4. ANALYSIS OF THE MICROSTRUCTURE PROPERTY LINK IN THE STEELS AND COBALT ALLOYS FOR EXTREME TEMPERATURES.
5. DESIGN OF LIBRARIES OF THIN FILMS AND COATINGS WITH CONTINUOUS GRADIENTS OF COMPOSITIONS.
6. DESIGN OF MULTIFUNCTIONAL MULTILAYERS BY HIGH THROUGHPUT SYSTHESIS AND FAST PROPERTY SCREENING BY NANOINDENTATION.
7. VIRTUAL DESIGN OF COMPOSITES BY A MULTISCALE STRATEGY.



COURSES AND WORKSHOPS

- SUMMER SCHOOL ON "ADVANCED PROCESSING OF METALLIC MATERIALS", IMDEA MATERIALS
- TRAINING PROGRAM ON "MANAGEMENT OF RESEARCH", IMDEA MATERIALS:
  - WRITING SCIENTIFIC PAPERS. LITERATURE SEARCH. DR. M.T. PÉREZ-PRADO.
  - HOW TO PREPARE EFFECTIVE PRESENTATIONS. D. M.A. RODIEL.
  - INTRODUCTION TO PROJECT MANAGEMENT. DR. G. INFANTE.
  - R&D SYSTEMS. PROPOSAL PREPARATION AND EVALUATION.
  - BASIC ECONOMIC CONCEPTS.
  - ENTREPRENEURSHIP.
  - HOW TO PREPARE AN EXCELLENT PHD THESIS.

www.dimmat-project.com http://www.madrimasd.org/blogs/materialesavanzados/