

Short course on

MATERIALS FOR SUSTAINABLE ENERGY GENERATION



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FARES: free assistance with previous registration

INSCRIPTION: send an email before **15 February** to Ana Flores (aflores@mater.upm.es) with your personal data (name, institution, email, telephone, ID card number, and if you are and student, course and degree)

ATTENDANCE CERTIFICATE: any participant could get an attendance certificate if it indicates it during the inscription

LOCATION: ETS de Ingenieros de Caminos, Canales y Puertos, C/ Profesor Aranguren s.n., 28040-Madrid

CLASS SCHEDULE: 9:30 to 14:00 h. from Monday to Friday

SCHEDULE:

Monday 22nd February

Session I: Sustainable ceramic materials

1. New emerging sintering techniques assisted by current: spark plasma sintering and flash sintering
2. Ceramics for environmentally-friendly processes
3. Design of advanced ceramics by new processing and sintering routes

Tuesday 23th February

Session II: Thermal Barrier Coatings/Environmental Barriers Coatings (TBCs/EBCs)

1. Concept and structure of TBCs/EBCs
2. Materials and processing of TBCs/EBCs
3. Properties of TBCs/EBCs for gas-turbine engine

Wednesday 24th February

Session III: Ceramic matrix composites (CMCs)

- ✓ Classification of CMCs
- ✓ CMCs containing carbon structures (graphite, fibers, carbon nanotubes and graphenes)
- ✓ SiC/SiC composites for high temperature applications

Tuesday 25th February

Session IV: High heat flux materials

- ✓ Materials for extreme conditions
- ✓ Ultra-High Temperature Ceramics (UHTCs)
- ✓ MAX phases

Friday 26th February

Session V: Future materials for energy saving

- ✓ Lightweight materials and porous structures
- ✓ Nanomaterials
- ✓ New manufacturing techniques