Symposium 8:
Materials for Solar Thermal Energy Conversion and Storage

Concentrated solar technology is expected to contribute significantly to a future sustainable, efficient and diverse energy mix. Together with suitable thermal energy storage systems concentrated solar energy may provide base load power. Moreover, concentrated solar energy can be used for high temperature process technology, e.g. for the production of fuels or chemicals. Material requirements in the field of concentrated solar energy are manifold: Besides thermal, thermomechanical and chemical stability, lifetime and environmental resistance, appropriate functional properties (optical, chemical and thermal properties) must also be taken into account.
The symposium Materials for Solar thermal Energy Conversion and Storage will be focused on CSP-related materials in a broader sense. In particular, the following topics will be covered:

- Absorber materials
- Mirrors and reflector coatings
- Heat transfer media
- Thermal energy storage materials
- Materials for solar fuels
- Structural materials for solar receivers and solar reactors

<PROPOSED SESSION TOPICS>

- Absorber materials (light absorbing performance, selective coatings, robustness against thermal cycling, interactions with environmental effects such as airborne mineral dust, vapor, salts, etc.).
- Innovative high temperature construction and isolation materials for solar receivers and solar reactors
- Mirrors and mirror coatings (reflectivity, stability against pitting and delamination, self-cleaning surfaces, life time prediction considering temperature swings, UV irradiation, rain, dust, etc.).
- Heat transfer media (molten salts, particles, molten metals etc.) with improved stability and wider operating temperatures; reactions between heat transfer media and other components.
- Novel materials for thermal energy storage systems (molten salt storage, phase change materials, materials for thermochemical storage systems).
- Materials for (solar) thermochemical processes to produce H_2, CO or synthetic fuels (Metal Oxide-Based Redox Materials, Catalysts, Sulfur-Based Cycles, Cu-Cl Cycle, etc.).

<ORGANIZERS>

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<INVITED LECTURES>

Tentative invited lecture information is posted in the following URL;
http://www.ceramic.or.jp/pacrim13/list_of_invited_speakers.html#8