

## Polymer Derived Ceramics (PDCs)

Owing to their unique properties, especially high thermal and chemical resistance and low density, advanced ceramics should play a major role in future materials and technologies. However, many of the important industrial objectives require the development of novel materials, with specific shape and micro/nanostructure. Difficulties inherent to the traditional techniques for manufacturing these ceramics can be overcome by the preceramic polymers pyrolysis process, which consists in

- (i) the synthesis of a molecular precursor,
- (ii) its transformation into an inorganic polymer,
- (iii) its shaping followed by a thermal treatment for conversion into the ceramic.

Polymer Derived Ceramics (PDCs) thus present a growing interest in the ceramic science for the following main reasons:

- (1) Complex forms (fibers, porous ceramics, etc...) can be elaborated from the plastic polymer,
- (2) the ceramic micro/nanostructure is developed in situ during the polymer-to-ceramic conversion offering unlimited possibility to create new nanophase assemblage,
- (3) metastable amorphous ceramics, as well as polycrystalline ceramic composites can be obtained.

The expected technological breakthroughs are in the domain of novel materials with structural and multifunctional properties for applications in extreme environments, e.g. ultra high temperature resistant ceramics, hard and wear resistant materials, ceramic microtubes and microelectromechanical systems (MEMS).

Thus, this symposium is aimed to give an overview of the current status as well as of the outlooks in the general field of Polymer Derived Ceramics (PDCs). We call for papers giving the latest information on research and development in interdisciplinary fields related to PDCs such as Synthetic Inorganic and Organometallic chemistry, Polymer Chemistry, Materials Science and Engineering, Solid State Physics and Modelling.