

**Tentative Outline**  
**Special Issue for Current Organic Chemistry**  
*Guest Editor(s): Stanislaw Slomkowski*

**TITLE: Macromolecules at interfaces – synthesis and properties**

**Aims & Scope:**

Interfaces between solids (e.g. polymers, metals, ceramics) and liquid continuous phase constitute unique environment in which small molecules and macromolecules are exposed to large gradients of chemical composition, density, electric charges and potentials, pH, ionic strength and many others. Thus it is not surprising that chemical and physicochemical properties of the above-mentioned molecules as well as characteristic features of processes occurring in interfacial regions are usually substantially different from those in continuous phases and therefore deserve special attention.

Papers collected in this issue written by specialists in the field describe state of the art of present knowledge related to most important aspects of chemistry at interfaces. Particular subjects discussed in these papers will include synthesis and properties of small and large molecules designated for modification of interfaces, polymerization from surfaces, grafting of molecules onto them and surface modification by self-organization of adsorbed molecules. Special attention will be concentrated on processes allowing to obtain surfaces with antifouling properties and modification of surfaces dedicated for fabrication of biosensors. The latter will include also discussion on preparation of surfaces sensitive to external stimuli, like temperature and pH. There will be presented results of recent studies on materials with surfaces with controlled balance of hydrophilic/hydrophobic properties. Some papers will be devoted to modification of surfaces of nano-objects especially intensively investigated during the last years. Particular attention will be devoted to preparation of polymer-coated metal nanoparticles (gold, silver, platinum and metal alloys) and siloxane nanoparticles based on silsesquioxane structures. Each paper will contain some discussion on possible future studies and short presentation of possible practical application of discussed materials and description of processes of their synthesis.

**Subtopics:**

- Block copolymers for modification of colloidal particles
- Reactions leading to controlled hydrophilicity/hydrophobicity
- Modification of carbon nanotubes
- Modification of clay fillers for clay-polymer nanocomposite materials
- Functionalization of magnetic nanoparticles
- Surface initiated polymer brushes
- Functionalization and modification of POSS nanoparticles
- Surfaces with antifouling properties
- Synthesis and selected properties of organic/inorganic nanocomposites
- Modification of interfaces by self-organization
- Modification of surfaces on molecular, macromolecular, nano- and microsize level
- Materials with external stimuli sensitive interfaces

- Reactions at interfaces of metal nanoparticles

**Approximate Schedule:**

- Manuscript Submission Deadline: 01/31/16
- Peer Review Due: 02/28/16
- Revision Due: 03/31/16
- Notification of Acceptance by the Guest Editor: 04/15/16
- Final Manuscript Due: 04/25/16