

**Tentative Outline**  
**Special Issue for Current Organic Chemistry**  
*Guest Editor(s): Dr. Rosalinda Mazzei, Dr. Lidietta Giorno*

**TITLE: Bio-inspired membranes for separation conversion sensing and bioartificial systems**

**Aims & Scope:**

With the modern development of biomedicine and biotechnology, a lot of artificial materials and devices were developed for bio-detection, biochemical device, bioengineering materials and implantable materials.

Bioinspired membranes are a big family of next generation synthetic materials whose structure, properties or function mimic those of natural materials or living matter.

The membrane materials (organic, inorganic or hybrid), can be synthesized according to the fundamental principles of the materials present in nature. On the other hand, the advancements in biological/ membrane science related to structure, function can be tuned and modified to rationally design the structure or function of bioinspired membrane.

Nanostructured microporous membranes functionalized with biomolecules/cell or used for bioseparation and artificial devices are very suitable for the development of biohybrid and biomimetic systems which find application in various field including biocatalysis, biomedicine and biotechnology. The system simulates the biological membrane environmental like, where the biological system can be heterogenized inside/on the membrane and its passage can be regulated by controlled fluid dynamic conditions.

In addition this technology permitted to work in mild conditions, the equipments need small space, are flexible and easy to scale-up (they are enabling technologies and well respond to the process intensification strategy); products are of high quality; co-products are also of high quality.

Despite the advantages of nature simulation by bio-inspired materials application, there are some issues which need to be addressed in order to achieve up-scaling of such systems.

In this special issue, the different aspects of bio-inspired membrane catalysis, conversion sensing and bioartificial systems are discussed to show the complexity of this interdisciplinary technology. In addition, the existing issues which require further investigation will be highlighted.

**Key words:** Membrane processes, bioseparation, bioreactors, bioaffinity, biotechnology

**Subtopics:**

- Chemistry of Bioseparation by membrane processes: principles, applications and impact
- Biocatalytic membranes chemistry: principles, applications and impact
- Bioaffinity membranes chemistry: principles, applications and impact
- Bioartificial organs : principles, application and impact
- Biologically-inspired responsive membranes: principles, application and impact
- Techniques to characterize bio-inspired membranes

**Approximate Schedule:**

- Manuscript Submission Deadline: 10/30/2015
- Peer Review Due: 11/30/15
- Revision Due: Nov. 12/30/15
- Notification of Acceptance by the Guest Editor: 01/30/16
- Final Manuscript Due: 30/05/16