EDITORIAL

Special Issue on "Organic/Inorganic Hybrid Materials for Energy and Environment"

Energy and environmental issue may be the most important worldwide problem of social and industrial aspects in the 21 century. In order for reducing CO_2 emission, the emergency of development of new renewable energy or keeping environment, novel functional materials are urgently necessary to be developed for solution by chemical science or technology. Meanwhile, battery materials such as solar cell have been recognized as important methods, desirable functions could not be attained by using conventional compounds merely. Hope comes from organic/inorganic hybrid materials. Organic/inorganic hybrid materials play a critical role in designing complicated systems to be worked photochemical and electrochemical or other functional parts that collaborates each other properly. Therefore, novel organic/inorganic hybrid materials aiming at energy and environmental materials with greater performance are in high demand.

In this context, I asked authors to submit original research as well as review articles focused on below topics to this special issue in *Journal of Applied Solution Chemistry and Modeling* that will help in developing organic/inorganic hybrid materials for energy and environment.

- Recent development of organic/inorganic hybrid materials for energy systems
- Recent development of organic/inorganic hybrid materials for environmental analysis
- Recent development of organic/inorganic hybrid materials for environmental keeping or cleaning
- Novel advances in chemistry for energy and environment

Actually, some nice articles were submitted and they are published in this special issue.

"Recent Advances on Design and Synthesis of Chiral Imidazolium Ionic Liquids and their Applications in Green Asymmetric Synthesis" by S. Banerjee.

The aim of this review is to highlight the recent breakthrough of Chiral ILs in chirality transfer or chiral recognition when used as solvent or co-solvent: the case of task specific ionic liquids is beyond the scope of this review. In the first part, the synthesis of CILs will be presented while the second part will be devoted to their use in the field of asymmetric synthesis as well as various pharmaceutics industries.

"Colloidal Hydroxyapatite/Poly(Acrylic Acid) Hybrids Using Calcium Sucrate and Ammoniumdihydrogen Orthophosphate" by W. P. S. L. Wijesinghe, M. M. M. G. P. G. Mantilaka, A. M. C. P. Weerasinghe, K. M. Nalin de Silva, T. P. Gamagedara and R. M. G. Rajapaks.

This manuscript is concerned with a simple and novel method to synthesize hydroxyapatite-poly(acylic acid) hybrid materials for broad range of applications. In this method, hydroxyapatite nanoparticles are synthesized using calcium sucrate and ammoniumdihydrogen orthophosphate in the presence of poly(acrylic acid). Additionally, increase poly(acrylic acid) or Poly(acylic acid) tends to control both crystallite size and colloidal stability are also mentioned.

"Theoretical Interpretation of Polarized Light-Induced Supramolecular Orientation on the Basis of Normal Mode Analysis of Azobenzene as Hybrid Materials in PMMA with Chiral Schiff Base Ni(II), Cu(II), and Zn(II) Complexes" by M. Ito, T. Akitsu and M. A. Palafox

The authors have prepared hybrid materials of azobenzene and chiral Schiff base Ni(II), Cu(II), and Zn(II) complexes and investigated their linearly or circularly polarized UV (ultraviolet) light induced supramolecular

orientation with polarized electronic and IR spectra or CD (circular dichroism) spectra. And the results were compared with quantum chemical theoretical values using B3LYP, M052X, and M062X DFT (density functional theory) methods.

"Absorption Wavelength Extension for Dye-Sensitized Solar Cells by Varying the Substituents of Chiral Salen Cu(II) Complexes" by R. Shoji, S. Ikenomoto, N. Sunaga, M. Sugiyama and T. Akitsu

New chiral salen-type Cu(II) complexes (**1-7**) were prepared, and the effects of different substituent groups on their absorption spectra were evaluated using time-dependent density functional theory (TD-DFT). Electron withdrawing groups resulted in a red-shift and an increase in the peak intensity. In particular, the DSSC prepared using **2** (which has electron withdrawing groups and the largest maximum absorption) exceeded the power conversion efficiency of DSSC fabricated using **N3**, which is a commonly used Ru(II) complex.

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