

Development of Organic Multifunctional Spin Systems

Shinichi Nakatsuji

Graduate School of Material Science, University of Hyogo, Japan

Considerable attention has been paid during past decades and is still being paid to the development of functional organic systems with multi-properties such as organic magnetic conductors, photochromic magnets, magnetic liquid crystals and so forth and we have been interested in developing organic spin systems combined with conductivity, photochromism, thermochromism, liquid crystalline, or rechargeable battery properties. In this paper we would like to report some of our recent results on the development of organic multifunctional spin systems toward molecular spin devices.

A naphthalenediimide derivative carrying TEMPO radical and azobenzene chromophore was found to show photo-responsive magnetic as well as FET properties upon illumination and multi-step charge-discharge properties were observed in some nitroxide-carrying ferrocene derivatives or disulfide compounds. Some radical salts with chromophore and anchor units were proved to work as colored compatibilizers with a squarium dye in the photovoltaic properties. These results will be presented and discussed.

Biography:

Dr. Shinichi Nakatsuji obtained a PhD from Osaka University and after studied as a JSPS postdoctoral fellow at the same university, he joined the Faculty of Pharmaceutical Sciences, Nagasaki University, as an assistant professor. He studied one year at the TH (now TU) Darmstadt as an Alexander von Humboldt fellow. In 1990 he moved to the newly founded Faculty of Science at Himeji Institute of Technology (now University of Hyogo) and was appointed as a professor in 1998. He served as the dean of School of Science as well as a councillor of the university and is currently a professor emeritus. He is the author or one of the co-authors of 9 books, 15 reviews and book chapters as well as 12 patents. He has published over 220 scientific papers and has been awarded in 2008 the distinction of *Doctor Honoris Causa* from Technical University of Iasi in Romania.