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SYNTHESIS AND CHARACTERIZATION OF FLUORESCENT CONJUGATED POLYMER DOTS HYBRIDIZED WITH INORGANIC MATERIALS FOR RESPONSIVE PROPERTIES

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Conjugated polymers gain a great deal of attention in various applications such as light-emitting diodes, transistors, photovoltaic cells and solar cells, because of their excellent electrical conducting and optical properties. Among various applications, nanoparticles fabricated from such conjugated polymers have advantages, including strong fluorescence, good dispersion in water and easy functionalization on surface. Using such properties of the nanoparticles, many investigations on the conjugated polymer nanodots have been carried out for bio-imaging, bio-sensing, and chemical detection. The surface modification of conjugated polymer dots is found to be intriguing in biology-related fields because of the colloidal stability of the conjugated polymer nanodots in aqueous solution. We are demonstrating new, versatile conjugated polymer-based nanodots that hybridize with inorganic materials for varying optical properties as well as a specific detection of target analytes.

Biography

Taek Seung Lee received a BS in Textile Engineering in 1988 and a PhD in Fiber and Polymer Science in 1994 from Seoul National University. After his Post-doctoral research at Korea Institute of Science and Technology and University of Massachusetts Lowell, he joined Chungnam National University as an Assistant Professor in 1997 and became a Full Professor in 2008. His research interests include: synthesis of functional organic materials and construction of hybrid nanomaterials, which have potential uses in OLED and chemical/biological sensors.

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