Seminar: November 16 (Mon.), 2009, 16:00~, S 84

Lecturer: Takaya Terashima*

Title: Functionalized Designer Polymers via Metal-Catalyzed Living Radical Polymerization

Abstract:

Metal-catalyzed living radical polymerization, so called atom transfer radical polymerization (ATRP), is now an efficient, powerful, and robust tool to design polymeric materials with precision architectures toward creation of the unique functions. The key is, needless to say, to select suitable catalytic system for monomers. Among them, ruthenium catalysts, originally developed since the first discovery in 1995, have high activity, controllability, monomer versatility, and tolerance to polar functional groups, in addition to the inherent various catalysis (hydrogenation etc.), thus potentially opening new vistas for functionalized polymers.

In this seminar, I describe recent advance of synthetic strategies and functions of functionalized polymers via ruthenium-catalyzed living radical polymerization, especially focusing on the following three topics: 1) catalyst design for functionalized polymers with high activity and versatility; 2) concurrent tandem polymerization for efficient, convenient synthesis of gradient copolymers via in-situ monomer transformation with simple alcohols; 3) core-functionalized star polymers toward microgel-core catalysis and selective molecular recognition.

***Information**

Title: Assistant Professor, Ph.D.

Affiliation: Polymer Chemistry, Graduate School of Engineering, Kyoto University,
Katsura, Nishikyo-ku, Kyoto 615-8510, Japan

Tel/Fax: +81-75-383-2603

Present Affiliation (10/1/2009-9/30/2010):

Macro-Organic Chemistry [Prof. E. W. (Bert) Meijer Group], Molecular Science and Technology,
Department of Chemical Engineering and Chemistry, Eindhoven University of Technology,
Eindhoven 5600 MB, The Netherlands

E-mail: terashima@living.polym.kyoto-u.ac.jp, T.Terashima@tue.nl