

# First KIA Laureate Applied Research



- ◆ **Field: Chemistry**
- ◆ **Researcher: Prof. Tamio Hayashi**
- ◆ **Nationality : Japanese**
- ◆ **Date of Birth: 16 February, 1948**
- ◆ **Position: Professor**
- ◆ **Scientific Affiliation: Department of Chemistry, Kyoto University**
- ◆ **Research work title: Design of Chiral Transition Metal Catalysts and Development of New Catalytic Asymmetric Reactions**

**Abstract:** Professor Hayashi is best known for his insightful and seminal contributions to the area of catalytic asymmetric synthesis, especially carbon-carbon bond forming reactions and functionalization of olefins using chiral transition metal catalysts. He was the first to succeed in palladium-catalyzed asymmetric cross-coupling, gold-catalyzed asymmetric aldol-type reaction, rhodium-catalyzed asymmetric addition reactions, and asymmetric hydrosilylation of olefins. His another outstanding contribution is the development of new and powerful chiral ligands. Chiral ferrocenylphosphines have been widely used for various types of asymmetric reactions, and the chiral dienes he designed recently are attracting particular attention as an unprecedented type of chiral ligands. His catalytic asymmetric reactions have been successfully applied to the synthesis of useful compounds such as medicines.

**Biography:** Tamio Hayashi graduated from Kyoto University in 1970. He received his Ph.D. degree in 1975 from Kyoto University under the direction of Professor Makoto Kumada. He was appointed as a Research Associate in Faculty of Engineering, Kyoto University. He spent the year 1976-1977 as a postdoctoral fellow at Colorado State University with Professor Louis S. Hegedus. He was promoted to Full Professor in 1989 in the Catalysis Research Center, Hokkaido University. Since 1994, he has been a Full Professor in the Faculty of Science, Kyoto University. His awards include IBM Japan Prize in 1991, The Chemical Society of Japan Award in 2003, Thomson Scientific Research Front Award in 2004, Molecular Chirality Award in 2005, The Ryoji Noyori Prize and Author C. Cope Scholar Award in 2008. Tamio Hayashi has published more than 330 original papers and the total citation number is around 21.000 (H-index 80) at October, 2009.