

POLY Awards

Carl S. Marvel Creative Polymer Chemistry Award- Previous Awardees  
1981-1995

## 1995 Carl S. Marvel Award

**Krzysztof Matyjaszewski** (pronounced Ma-ti-ya-shev-ski), Professor of Chemistry at Carnegie Mellon University, will receive the 1994 Carl S. Marvel Creative Polymer Chemistry Award of the ACS Division of Polymer Chemistry, sponsored by the Dow Chemical Company Foundation. Matyjaszewski is recognized for his innovative work on the synthesis of precisely defined organic and inorganic polymers.

Matyjaszewski received the Ph.D. (1976) and Habilitation (1985) degrees from the Polish Academy of Sciences, and carried out postdoctoral work at the University of Paris and the University of Florida. His early work focused on cationic ring-opening polymerization of heterocyclics, including cyclic ethers, orthoesters, sulfides, iminoethers, and amines in careful, systematic explorations that became a hallmark of his subsequent endeavors.

After joining Carnegie Mellon in 1985, Matyjaszewski concentrated on the synthesis of novel organometallic and inorganic polymers, particularly polysilanes and polyphosphazenes, and control of structure in the synthesis of organic polymers. His studies of polysilanes led to new preparative methods: a low -temperature sonochemical reductive coupling, modification of polysilanes with aryl groups via protodesilylation, preparation of the first chiral polysilanes and a ring-opening polymerization of strained cyclopolysilanes. The latter method provided the first polysilanes with controlled microstructure and enabled control of molecular weight, polydispersity and the preparation of block copolymers. He also discovered a new and more efficient synthetic route to polyphosphazenes, based on anionic polymerization of phosphoranimines. The process provides quantitatively linear polyphosphazenes with narrow molecular weight distributions under mild conditions, and has made possible the first copolymers with two different polyphosphazene segments. Another approach based on polymerization of phosphine azides provided the first soluble poly(diarylphosphazenes).

The thrust of Matyjaszewski's current research is the synthesis of well defined polymers and copolymers by carbocationic and radical polymerization. He has critically evaluated and applied the concept of living polymerization to these systems, and elucidated the reaction mechanism, involving a rapid reversible deactivation of growing species present in minute amounts. The new initiation systems for radical and carbocationic processes provide polymers and copolymers with novel and controlled structures and topologies.

As chairman of the Polymer Curriculum Development Award Committee of the ACS Polymer Division, Matyjaszewski has been deeply involved in efforts to promote innovative projects in polymer education and to disseminate the experience and curriculum materials that they generate. He has received a Presidential Young Investigator Award (1989), and awards from the Polish Academy of Sciences (1981) and the Polish Chemical Society (1980). He is a member of several editorial boards and serves on the IUPAC Nomenclature Committee.

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## **1993 Carl S. Marvel Award**

**S. K. Tripathy**

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**Dave Tirrell**

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## **1989 Carl S. Marvel Award**

**Robert Langer**

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## **1987 Carl S. Marvel Award**

**G. Wilkes**

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## **1985 Carl S. Marvel Award**

**E. L. Thomas**

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## **1983 Carl S. Marvel Award**

**W. L. Mattice**

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## **1981 Herman Mark Award in Polymer Chemistry**

**L. J. Fetters**