

The Hamburg Macromolecular Symposia have been organized by the Institute of Technical and Macromolecular Chemistry of the University of Hamburg on annual basis since 1976. The meetings are dedicated to different specific fields of polymer science and are the place for discussions of leading research groups from academies and industry. The Hamburg Macromolecular Symposium 2005 had the topic “Polyolefin polymerization” for the fourth time.

With an enormous velocity, olefin polymerization has expanded to one of the most significant fields in polymers since the first industrial use about 50 years ago. In 2005, 100 million tons of polyolefins were produced - the biggest part was catalyzed by metallorganic compounds. By the discovery of metallocene/methylalumoxane catalysts in Hamburg, possibilities to control the micro- and stereo structure of polyolefins in a way which was not possible before, were given. The use of late transition

metal- and other complexes have enlarged these possibilities, showing that the field is still growing. Better cationic catalysts were also found for the synthesis of polydienes and polyisobutene. The properties of the polymers prepared by organometallic catalysts can be varied by the kind of olefins, the microstructure of the polymers, fillers, and polymerization processes.

Therefore, this research field is destined for a cooperation between different faculties such as physics, chemistry, materials science, and engineering under the slogan “From molecule to material”. The Hamburg Macromolecular Symposium 2005 combined scientists from different disciplines to discuss latest research results of polymers and to offer each other the possibility of cooperation

*W. Kaminsky*