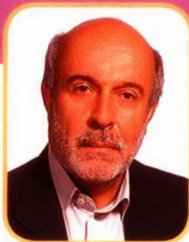


Third Laureate Fundamental Research



● **Project title:** Synthesis and Characterization of Biodegradable Polyurethane based on Polysaccharides

- **Representative:** Mahdi Barikani (Ph.D.)
- **Executive Organization:** Iran Polymer and Petrochemical Institute
- **Collaboration Organization:** Center of Excellence for Biocompatible Polymers
- **Collaborators:** Khalid Mahmood Zia, Hengameh Honarkar, Meisam Barikani, Majid Barikani, Mohsen Mohammadi

Abstract:

Although production of polymers offered an important role in human life but their stability in nature after use is a big disaster for the environment. Therefore lots of efforts have been applied for preparation of biodegradable and biocompatible polymers. In this way, more attention has been paid to natural polymers due to their renew ability and biodegradability.

Polyurethanes on the other hand are a unique class of polymers because of their physical and chemical properties and have found application in medical and other different industries. An increasing research interest in biodegradable polymers over the past 2 decades has led to the availability of a large variety of novel polymers with claims of biodegradability. A large number of biodegradable polymers have been used in biomedical and industrial applications. Among these polymers, novel biodegradable PU elastomers are expected to be suitable for any biomedical or industrial application.

In this research biodegradable and biocompatible polyurethane is synthesized through in-situ polymerization based on Polysaccharides such as: cellulose, chitin and chitosan and their physical, mechanical, thermal and biocompatibility are studied and discussed.

These polymers have potential for a wide range of different applications such as: water treatment, biosensors, Biological adhesive, absorbable, surgical threads, membrane, drug delivery and contact lenses.

