

This volume contains selected (peer-review) papers from the inaugural US-Mexico Symposium on Advances in Polymer Science, MACROMEX 2008, held in Los Cabos Baja California, Mexico, in December 7-10, 2008. This first bi-national conference was the result of a joint effort of the Mexican Polymer Society and the Polymer Chemistry Division of the American Chemical Society and, given the success of this first meeting, plans are being made to hold a second conference in the year 2011 joining the celebrations of the International Year of Chemistry. The conference was attended by more than 200 people, including around 65 students. More than 200 papers were presented, out of which approximately half were oral presentations and the other half were posters.

This first meeting was organized by Kris Matyjaszewski (Carnegie Mellon University) and Rigoberto Advincula (University of Houston) on the US side, and by Enrique Saldivar-Guerra (Centro de Investigación en Química Aplicada, CIQA) and Gabriel Luna-Bárcenas (Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV) on the Mexican side.

The conference attempted to bring together scientists from both academia and industry, and this was especially noticeable in sessions covering more applied aspects, such as polyolefins or membranes. In the frame of the conference there was also a Forum addressing Academy-Industry Cooperation. In this way the symposium covered a wide range of subjects from fundamental aspects of polymer synthesis to the application of polymers for advanced technologies, including polymer processing and engineering. The following topics were covered by the conference:

- Precise polymer synthesis
- Biopolymers
- Block copolymers
- Membranes
- Optoelectronics
- Nanocomposites and blends
- Polyolefins

- Polymer reaction engineering
- Polymer engineering

In this volume we have included selected papers from all the subjects and grouped them in the four following areas:

- Precise polymer synthesis and polymer modification
- Biopolymers
- Physical chemistry and properties of polymers
- Polymer engineering and applications
- Polymer processing and composites

As more advanced applications are developed using polymeric materials, the field becomes more complex and multidisciplinary, requiring the collaboration with scientists from areas traditionally far from polymer science. This trend is well reflected in many instances in the papers compiled in this volume, in particular in those pertaining to the subjects of biopolymers and optoelectronics. Nonetheless, the progress in more traditional fields, such as polyolefins or polymer processing, to cite a few, also benefits from concepts or tools developed in other areas of knowledge. Finally, recent progresses in the core areas of polymer chemistry, such as controlled radical polymerization, are also illustrated in the papers presented here.

The first meeting initiated many scientific collaborations between US and Mexican scientists. The organizers of the meeting acknowledge the financial support of industrial sponsors and of several agencies and institutions: National Council of Science and Technology (CONACYT-Mexico), CIQA, US-Mexico Foundation for Science (FUMEC) and the US Office of Naval Research Global. We also thank Wiley - VCH for providing the prizes to the winners of the poster competition.

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