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## Polyolefin Catalyst: Synthesis, Characterization, and Application

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submissions:

**closed (5 April 2024)**

### Message from the Guest Editor

Dear Colleagues,

Polyolefins are the thermoplastics with the largest volume, and represent a highly topical subject in both academia and industry. The early 1950s witnessed a boom in polyolefin synthesis. The Nobel Laureates Karl Ziegler (Germany) and Prof. Giulio Natta (Italy) made seminal breakthroughs in the catalytic synthesis of polyethylene and polypropylene, respectively, using organoaluminum-activated titanium chlorides. On the other hand, Standard Oil and Phillips Petroleum researchers independently introduced a chromium catalyst to prepare high-density polyethylene. This transition-metal-catalyzed olefin polymerization route made industrial polyolefin manufacture possible at 15-25 bars and 90-120 °C. The above pioneering catalyst contributions revolutionized the olefin polymerization organometallic catalysis and chemistry that we currently observe, read about, and teach. Their overall impact on polyolefin education, research, training, the manufacturing process, industry, application, and worldwide business is too colossal to report. Polyolefins, as a polymer and material science discipline, constitute an unending journey with an unreachable destination.



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