Advanced Functional Materials by Precise Polymerization and Self-assembly

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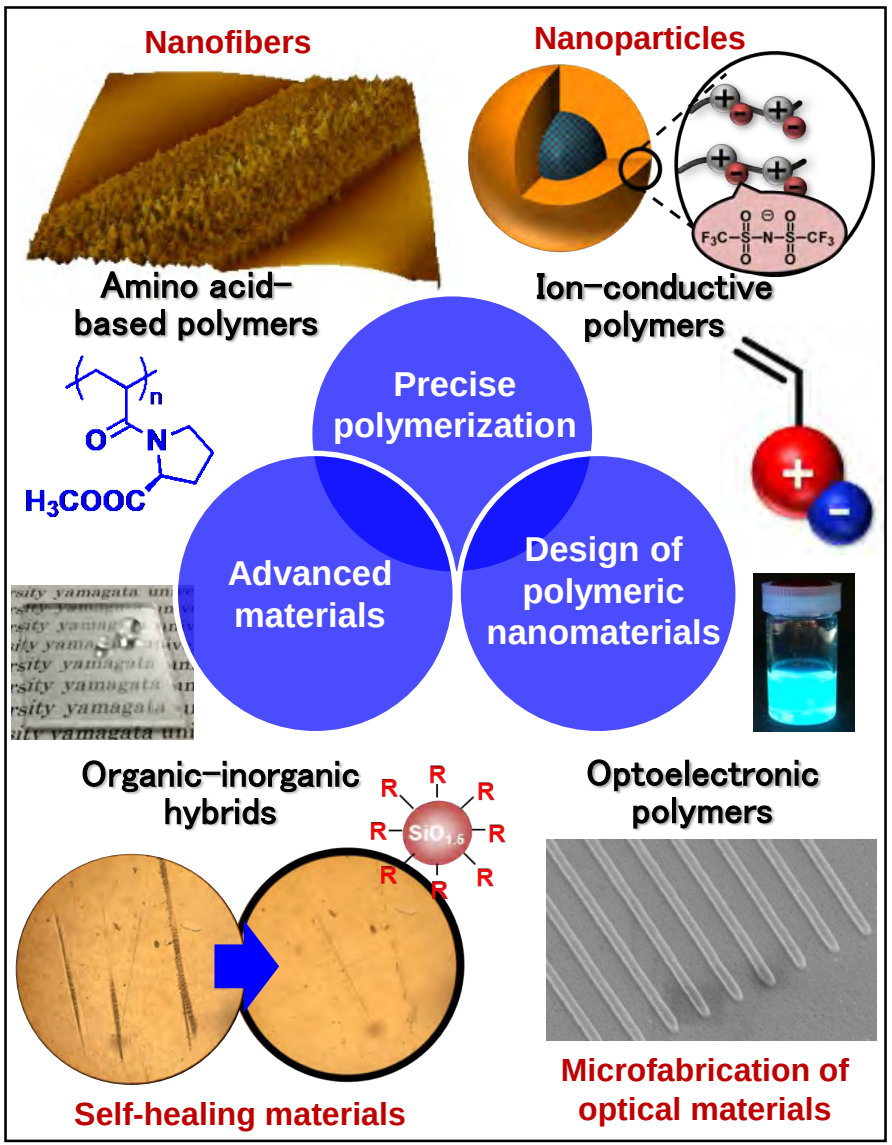

Content:

Recent development in controlled radical polymerization methods has provided methodologies to synthesize well-defined functional polymers by a very facile and simple approach. Our research interests are focused on the design and synthesis of nanostructured polymeric materials and advanced functional materials. We mainly employed reversible addition-fragmentation chain transfer (RAFT) polymerization, which is the most versatile controlled radical polymerization, and self-assembly system. Representative research topics are the developments of microfabrication technique of high-refractive-index polymers by nanoimprinting, amino acid-based polymers having specific interactions with DNA and proteins, ion-conductive polymeric nanomaterials, and self-healing organic-inorganic hybrids using silsesquioxane nanoparticles.

Appealing point:

Our current activities are also focused on the exploration of next-generation polymeric materials, which will contribute to the innovation in the environmental, bio-related, and energy sectors, by modern polymer chemistry.

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