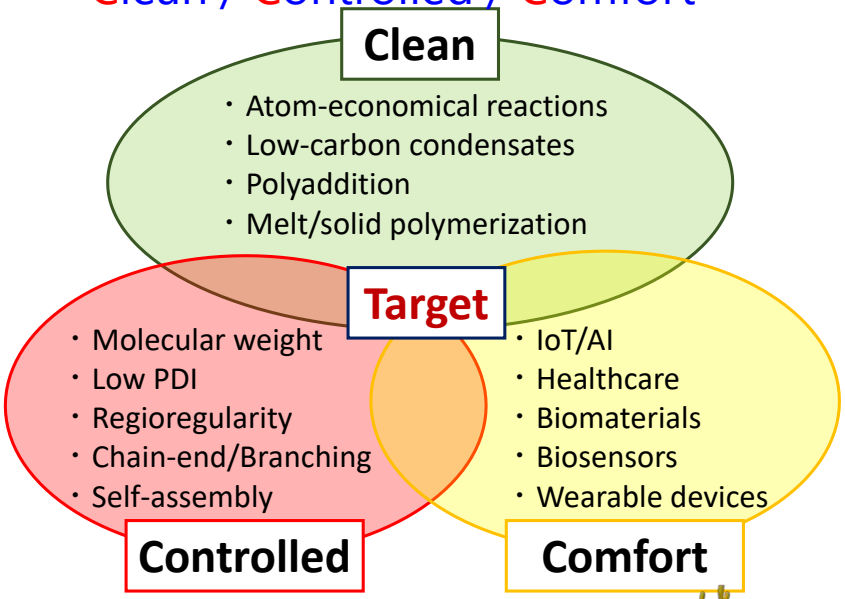
Precise Design and Synthesis for Condensative Polymer Materials

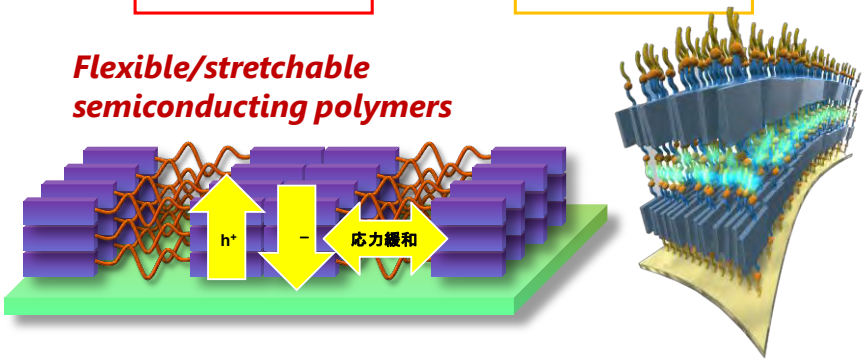
Prof. Tomoya Higashihara

Condensative Polymer Materials

Clean / Controlled / Comfort



Flexible/stretchable semiconducting polymers



Cancelling the trade-off between "semi-conductivity" and "elasticity"!

Contents:

We have been developing novel organic electronic materials using the precision synthesis and self-assembly of block copolymers based on the "condensative chain polymerization" method. Recently, we focus on this system that does not require any protecting groups, a transition metal/halogen-free low-environmental load polymerization system, and elastic semiconducting polymer materials. Especially, we emphasize on flexible/stretchable organic electronic materials as environment/energy materials applicable to IoT/AI and medical/ diagnostic fields.

Very recently, we succeeded in synthesizing and characterizing a novel semiconducting ABA triblock copolymers, where A and B were poly(3-hexylthiophene) and polyisobutylene, respectively, in order to beak the trade-off between "semi-conductivity" and "elasticity".

Other research interest includes bio-based super-enginnering plastics, high-refractive-index polymers, and low-*k* polymers suited for 6G era.

Appealing points:

* Achieving 231 original papers (h index: 45, WoS)
* Targeting QOL-Materials by Clean/Controlled/Comfort approaches
* Contributing to the society through the creation of highly-qualified doctoral personnel and industry-academia collaboration

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