

YOSHIE LAB.

[Materials developed by using polymer dynamics]

International Research Center for Sustainable Materials

<http://yoshielab.iis.u-tokyo.ac.jp/top.htm>

Department of
Chemistry and
Biotechnology

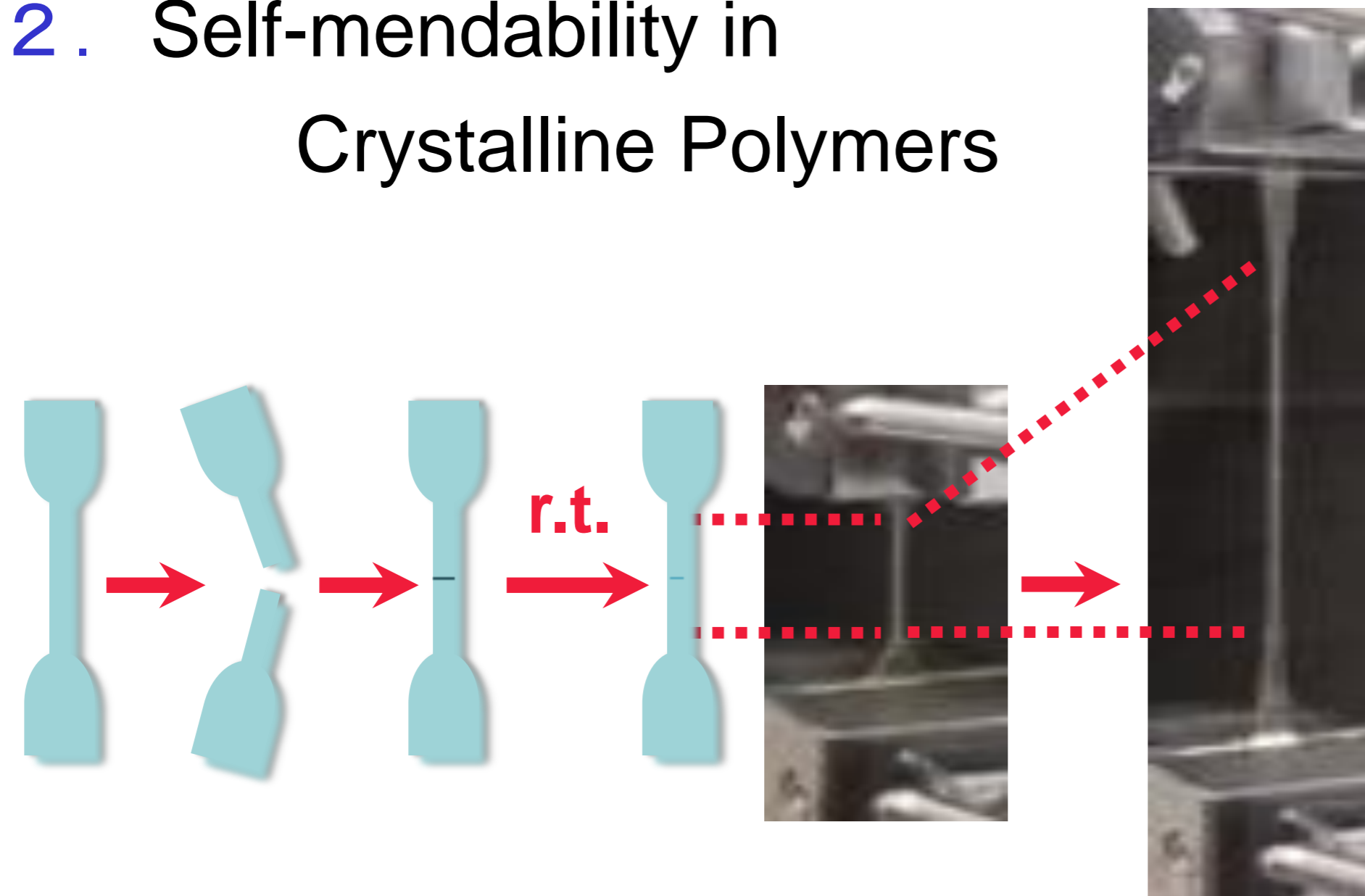
Polymeric and Environmentally Conscious Materials

Polymers constructed by dynamic bonds

Polymers with novel environmental functions are developed by using dynamic bonds such as reversible covalent bonds and hydrogen bonds. By coordinating phase transition behavior (crystallization/melt) with reversibility of the dynamic bond, we dynamically change the multi-level structure, which induces various novel functionality of polymers.

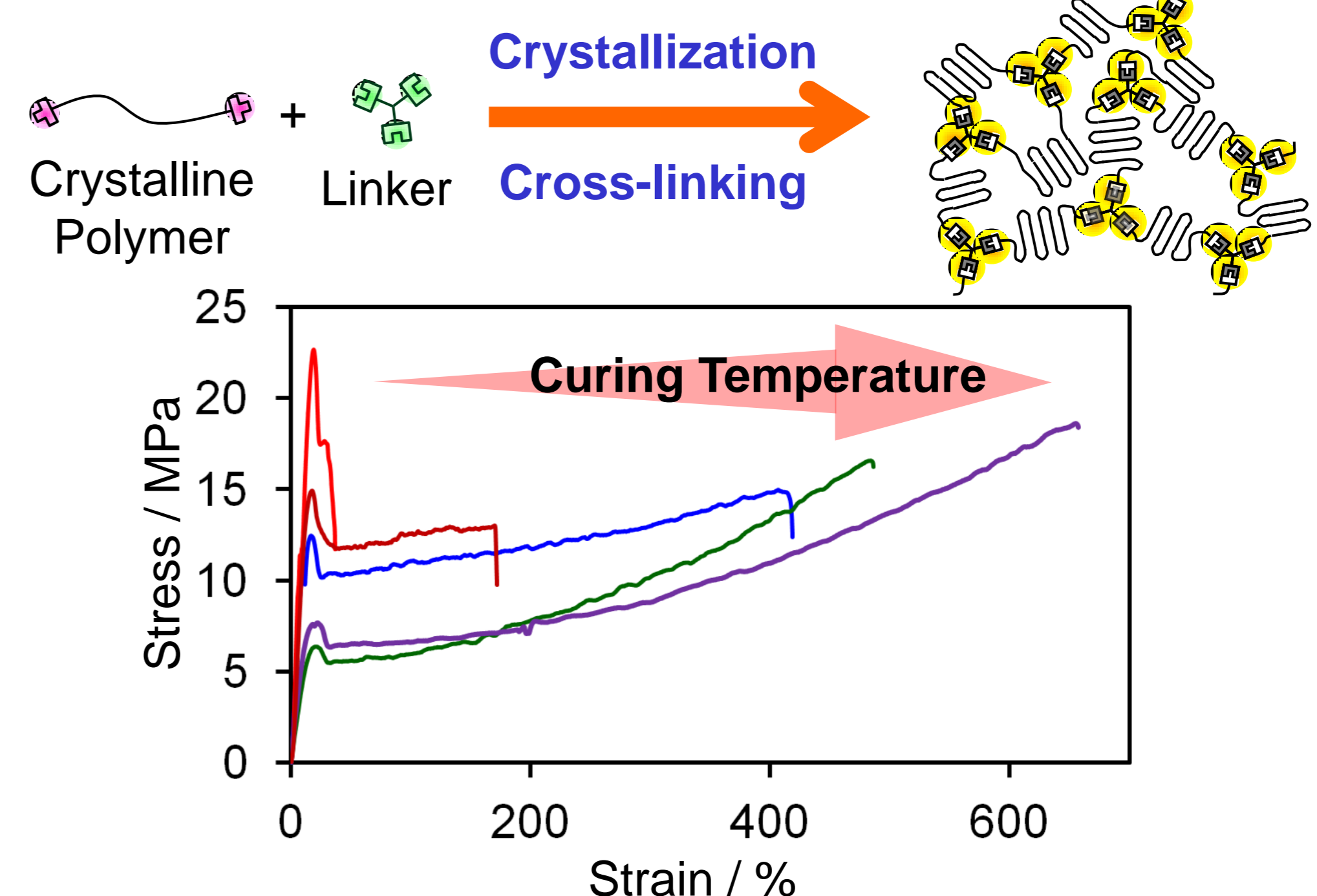
Mendable Materials

1. Self-mendable Elastomer with High Strength
2. Self-mendability in Crystalline Polymers



Soft ⇔ Hard Conversion

Control of the sequencing of cross-linking and crystallization



Nano-ordered Patterns by Polymer Blends

We successfully obtained a long-range ordered nanoscopic lamellar morphology in polymer blends by using directional crystallization onto crystalline solvent. This method using polymer blends instead of block copolymers may serve as a low-cost facile way to produce nanoscale lamellar orientation in thin films.

