Folded π-Conjugated Macromolecules

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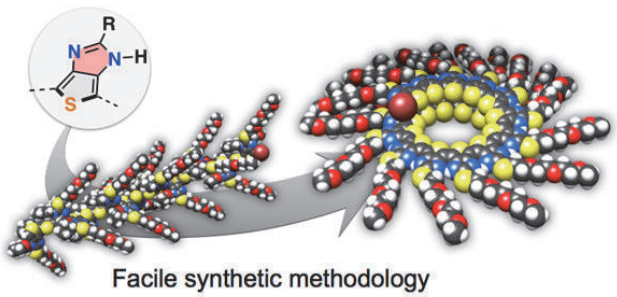
Background

- π-Conjugated oligomers and polymers are key materials in the fields of organic electronics, due to characteristic optical and electronic properties. These properties highly depend on their secondary structures. However, precise control is still challenging issue because of a lot of conformations along single bonds.

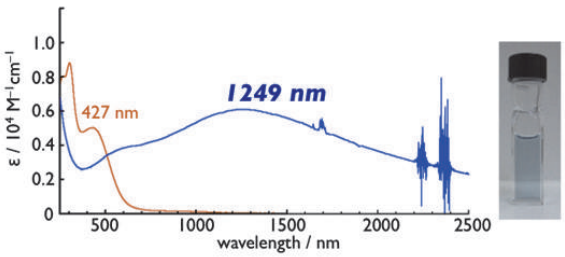
Aim

- Macromolecules constructed with designed monomer units
- Characteristic properties and functions resulting from secondary structure
- Stimuli and environment responsiveness

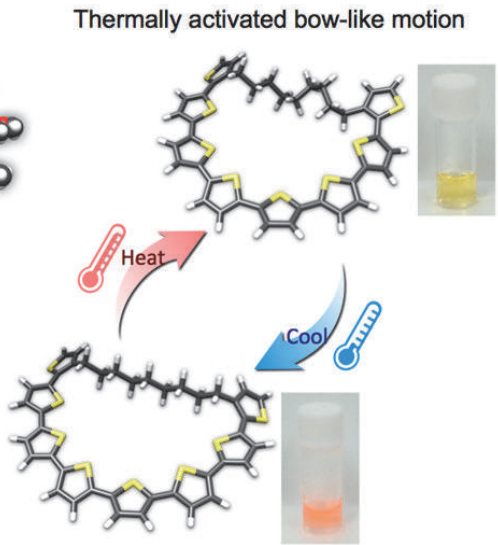
Advanced Research Topics



Facile synthetic methodology for folding secondary structure



Broad absorption in UV-Vis-NIR regions



Thermochromism in solutions or matrixes

Publications

- *Polymer J.*, **2017**, *49*, 133–139.
- *Phys. Chem. Chem. Phys.*, **2018**, *20*, 2970–2975.
- *J. Synth. Org. Chem., Jpn.*, **2018**, *7*, 200–208. (Review)

Summary

- Facile synthetic methodology for folding structure
- Characteristic optical properties and functions resulting from folded π-conjugation
- Visualization of local molecular environment

Research outcome

- Highly conductive macromolecular materials
- Mechanical-stimuli and chemical responsive sensors
- Actuating materials consisting of macromolecular machinery elements