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- 日本 東京工業大學 碩士，民國九十年
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- M.Sc. Tokyo Institute of Technology, Japan, 2001
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### 主要研究領域

- 高分子・超分子光電材料
  - 高分子半導體合成  
Synthesis of semiconducting polymers
  - 高分子光電材料與元件（有機太陽能電池・有機場效電晶體）  
Fabrication of polymer based electronic devices
  - 超分子光學材料  
Supramolecular opto-electronic materials

### Main Research Interests

#### ▪ Organic opto-electronic materials and devices

My research interests are synthesis of new semiconducting polymers using organometallic catalysts, characterization, and fabrication of organic electronic devices which involve organic solar cells and organic thin film transistors. I have also focused on supramolecules such as rotaxanes which can control molecular structure by external stimuli e.g photo-irradiation and thermal stimulation in single crystal state. The single crystal should have a completely aligned structure, and will therefore lead to new type of optical, switching, and memory devices with nano-scale order of resolution.

### 代表作 (Selected Publications)

- S.-W. Chang, **M. Horie\***, “Donor-Acceptor Conjugated Block Copolymer of Poly(arylene- vinylene)s by Ring-Opening Metathesis Polymerization”, *Chem. Commun.*, 51, 9113, 2015.
- S.-W. Chang, J. Kettle, H. Waters, **M. Horie\***, “Cyclopentadithiophene-Benzothiadiazole Copolymers with Permutations of Repeating Unit Length and Ratios; Synthesis, Optical and Electrochemical Properties and Photovoltaic Characteristics”, *RSC Adv.*, 5, 107276, 2015.
- Y.-C. Tsai, K.-J. Chen, C.-J. Su, W.-R. Wu, U. Jeng, **M. Horie\***, “Self-assembly of Pseudorotaxane Films with Thermally Reversible Crystal Phases and Optical Properties”, *J. Mater. Chem. C*, 2, 2061, 2014.
- H. Waters, J. Kettle,\* S.-W. Chang, C.-J. Su, W.-R. Wu, U. Jeng, Y.-C. Tsai, **M. Horie\***, “Organic photovoltaics based on a cross-linkable PCPDTBT analogue; synthesis, morphological studies, solar cell performance and enhanced lifetime,” *J. Mater. Chem. A*, 1, 7370, 2013.
- **M. Horie,\*** Y. Suzaki, D. Hashizume, T. Abe, T.-D. Wu, T. Sassa, T. Hosokai, K. Osakada, “Thermally-Induced Phase Transition of Pseudorotaxane Crystals: Changes in Conformation and Interaction of the Molecules and Optical Properties of the Crystals”, *J. Am. Chem. Soc.*, 134, 17932, 2012.
- S.-W. Chang, H. Waters, J. Kettle, Z.-R. Kuo, C.-H. Li, C.-Y. Yu, **M. Horie\***, “Pd-Catalysed Direct Arylation Polymerisation for Synthesis of Low-Bandgap Conjugated Polymers and Photovoltaic Performance”, *Macromol. Rapid Commun.*, 33, 1927, 2012.

