

# Yuya Doi

## Personal Information

Assistant Professor  
Department of Material Physics  
Nagoya University

Address: Furo-cho, Chikusa-ku, Nagoya 4648603, Japan

E-mail: ydoi@mp.pse.nagoya-u.ac.jp

TEL: +81-(0)52-789-4202



## Education

- 2011.3 B.S. from Dpt. Applied Chemistry, Engineering, Nagoya University  
2013.3 M.S. from Dpt. Applied Chemistry, Engineering, Nagoya University  
2016.3 Ph.D. from Dpt. Applied Chemistry, Engineering, Nagoya University  
Doctoral thesis: “Preparation and Characterization of Ring-based Polymers with Various Architectures and Their Viscoelastic Properties” (Supervisor: Prof. Yushu Matsushita)

## Academic Career

- 2013.10–2014.1 Visiting Student, the University of Tennessee, US  
(Host: Prof. Jimmy W. Mays)  
2014.4–2016.3 Research Fellow (DC2), Japan Society for the Promotion of Science  
2016.4–2017.12 Program-Specific Assistant Professor, Institute for Chemical Research,  
Kyoto University (Supervisor: Prof. Hiroshi Watanabe)  
2017.7–2017.9 Visiting Researcher, FORTH, Greece (Host: Prof. Dimitris Vlassopoulos)  
2018.1–2019.6 Postdoctoral Researcher, Venture Business Laboratory, Nagoya University  
(Supervisor: Prof. Yushu Matsushita)  
2019.7–2020.3 Postdoctoral Researcher, Forschungszentrum Jülich, Germany  
(Supervisor: Prof. Stephan Förster)  
2020.3–present Assistant Professor, Nagoya University (PI: Prof. Yuichi Masubuchi)

## Research Areas

### **Polymer Physics:**

1. Preparation, characterization and physical properties of model sheet-shaped polymers
2. Polymer dynamics and ion-conduction in novel solid polymer electrolytes
3. Non-equilibrium structure and dynamics of ring polymers under flow and elongation

## Research Skills

Size-exclusion and interaction chromatography / NMR / Static- and dynamic-light scattering / Small-angle X-ray and neutron scattering / DSC / Rheology / Dielectric spectroscopy / Optical and electron microscopy / Neutron spin echo

## Awards

- |         |  |
|---------|--|
| 2017.02 | The 33th Inoue Research Award for Young Scientists                               |
| 2014.12 | The 10th SPSJ International Polymer Conference 2014 Young Scientist Poster Award |
| 2013.05 | The Society of Rheology, Japan, Best Presentation Award                          |

## Publications

### Original Articles

1. L. Yang, T. Uneyama, Y. Masubuchi and **Y. Doi**,\*, “Linear Rheological Properties of Poly(Propylene Carbonate) with Different Molecular Weights”, *Nihon Reoroji Gakkaishi (J. Soc. Rheol. Jpn.)*, in press.
2. T. Kida, **Y. Doi**, R. Tanaka, T. Uneyama, T. Shiono and Y. Masubuchi, “Rheological Properties of Linear and Short-Chain Branched Polyethylene with Nearly Monodispersed Molecular Weight Distribution”, *Rheol. Acta.*, in press. DOI: 10.1007/s00397-021-01286-0
3. **Y. Doi**,\* A Takano and Y. Matsushita, “Preparation and Distorted Cylindrical Morphology of Block Copolymers Consisting of Flexible and Semiflexible Blocks”, *Polym. J.*, in press. DOI: 10.1038/s41428-021-00530-x
4. **Y. Doi**,\* A Takano, Y. Takahashi and Y. Matsushita, “Viscoelastic Properties of Dumbbell-Shaped Polystyrenes in Bulk and Solution”, *Macromolecules* **2021**, *54*, 1366-1374. DOI: 10.1021/acs.macromol.0c02050
5. **Y. Doi**,\* A Takano, Y. Takahashi and Y. Matsushita, “Melt Rheology of Tadpole-Shaped Polystyrenes with Different Ring Sizes”, *Soft Matter* **2020**, *16*, 8720-8724. DOI: 10.1039/D0SM01098G
6. Y. Masubuchi, **Y. Doi** and T. Uneyama, “Primitive Chain Network Simulations for the Interrupted Shear Response of Entangled Polymeric Liquids”, *Soft Matter* **2020**, *16*, 6554-6661. DOI: 10.1039/D0SM00654H
7. T. Noda, **Y. Doi**,\* Y. Ohta, S. Takata, A. Takano and Y. Matsushita, “Preparation, Characterization and Dilute Solution Properties of Four-Branched Cage-Shaped Poly(Ethylene Oxide)”, *J. Polym. Sci.* **2020**, *58*, 2098-2107. DOI: 10.1002/pol.20200286
8. T. Iwamoto, **Y. Doi**, K. Kinoshita, A. Takano, Y. Takahashi, E. Kim, T. H. Kim, S. Takata, M. Nagao and Y. Matsushita, “Conformations of Ring Polystyrenes in Semidilute Solutions and in Linear Polymer Matrices Studied by SANS”, *Macromolecules* **2018**, *51*, 6836-6847. DOI: 10.1021/acs.macromol.8b00934
9. Y. Kobayashi, **Y. Doi**, S. S. A. Rahman, E. Kim, T. H. Kim, A. Takano and Y. Matsushita, “SANS Study of Ring Topology Effects on the Miscibility of Polymer Blends”, *Macromolecules* **2018**, *51*, 1885-1893. DOI: 10.1021/acs.macromol.7b02359
10. T. Iwamoto, **Y. Doi**, K. Kinoshita, Y. Ohta, A. Takano, Y. Takahashi, M. Nagao and Y. Matsushita, “Conformations of Ring Polystyrenes in Bulk Studied by SANS”, *Macromolecules* **2018**, *51*, 1539-1548. DOI: 10.1021/acs.macromol.7b02358
11. **Y. Doi**, A. Matsumoto, T. Inoue, T. Iwamoto, A. Takano, Y. Matsushita, Y. Takahashi and H. Watanabe, “Re-Examination of Terminal Relaxation Behavior for High Molecular Weight Ring Polystyrene Melts”, *Rheol. Acta* **2017**, *56*, 567-581. DOI: 10.1007/s00397-017-1014-3
12. **Y. Doi**, A. Takano and Y. Matsushita, “Synthesis and Characterization of Dumbbell-Shaped Polystyrene”, *Polymer* **2016**, *106*, 8-13. DOI: 10.1016/j.polymer.2016.10.037

13. **Y. Doi**, Y. Iwasa, K. Watanabe, M. Nakamura, A. Takano, Y. Takahashi and Y. Matsushita, “Synthesis and Characterization of Comb-Shaped Ring Polystyrenes”, *Macromolecules* **2016**, *49*, 3109-3115. DOI: 10.1021/acs.macromol.6b00208
14. **Y. Doi**, A. Takano, Y. Takahashi and Y. Matsushita, “Melt Rheology of Tadpole-shaped Polystyrenes”, *Macromolecules* **2015**, *48*, 8667-8674. DOI: 10.1021/acs.macromol.5b01913 (*Selected as Cover Art*)
15. **Y. Doi**, K. Matsubara, Y. Ohta, T. Nakano, D. Kawaguchi, Y. Takahashi, A. Takano and Y. Matsushita, “Melt Rheology of Ring Polystyrenes with Ultrahigh Purity”, *Macromolecules* **2015**, *48*, 3140-3147. DOI: 10.1021/acs.macromol.5b00076 (*Selected as ACS Editors’ Choice*)
16. **Y. Doi**, Y. Ohta, M. Nakamura, A. Takano, Y. Takahashi and Y. Matsushita, “Precise Synthesis and Characterization of Tadpole-Shaped Polystyrenes with High Purity”, *Macromolecules* **2013**, *46*, 1075-1081. DOI: 10.1021/ma302511j

### **Books, Reviews and Tutorials**

1. Y. Masubuchi, **Y. Doi** and T. Uneyama, “Entanglement Molecular Weight”, *Nihon Reoroji Gakkaishi (J. Soc. Rheol. Jpn.)*, in print. [Review]
2. **Y. Doi**, A. Takahashi, Y. Takahashi and Y. Matsushita, “Physical Properties of Ring Polymers and Their Derivatives”, *Kobunshi* **2017**, *66*, 229-232. [Tutorial in Japanese]

### **Invited Talks & Seminars (International)**

1. **Y. Doi**, “Structure and dynamics of ring polymers and their derivatives”, IESL Seminar at FORTH, Crete, Greece, Feb. 10, 2020. [Seminar]
2. **Y. Doi**, “Structure and dynamics of ring polymers and their derivatives”, ICMN Seminar at University of Orleans, Orleans, France, Jan. 20, 2020. [Seminar]
3. **Y. Doi**, “Ring topology effect on the miscibility of polymer blends”, International Symposium “Polymers Meet Topology”, D2-14:30, Tokyo, Japan, Jan. 31, 2019. (Young-Scientist Invited)