



PJ ZEON Award for outstanding papers in *Polymer Journal* 2024

Keiji Tanaka, Editor-in-Chief¹

Received: 4 March 2025 / Accepted: 4 March 2025 / Published online: 5 June 2025
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The four winners of the 2024 PJ ZEON Award have been announced by the Society of Polymer Science Japan (SPSJ) as follows:

Yingjun An (Kyushu University, Japan) for the contribution ‘*Photooxidative Degradation and Fragmentation Behaviors of Oriented Isotactic Polypropylene*’, Vol. 56, No. 4, 2024.

Tomoyuki Kurioka (Institute of Science Tokyo, Japan) for the contribution ‘*Post-functionalization of Alternating π -Conjugated Copolymers Containing Fluorene Moieties via Anodic Chlorination Using $AlCl_3$* ’, Vol. 56, No. 12, 2024.

Yuma Morimitsu (Kyushu University, Japan) for the contribution ‘*Morphologies of Polymer Chains Spun onto Solid Substrates*’, Vol. 56, No. 11, 2024.

Mineto Uchiyama (Nagoya University, Japan) for the contribution ‘*Synthesis of Degradable Polymers via 1,5-Shift Radical Isomerization Polymerization of Vinyl Ether Derivatives with a Cleavable Bond*’, Vol. 56, No. 4, 2024.

Drs. An, Kurioka, Morimitsu and Uchiyama received their award certificates and medals. Each winner also received a cash prize of 300,000 JP yen and gave an invited talk based on their respective papers.

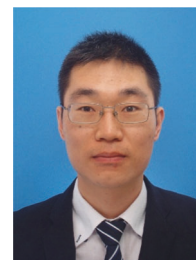
On behalf of the editors and editorial board members of *Polymer Journal*, I wish to congratulate Drs. An, Kurioka, Morimitsu and Uchiyama on this honor in recognition of their excellent papers [1–5]. I hope the award will provide encouragement to these young researchers for their bright future careers. Academic profiles of the winners can be found below this announcement.

The PJ ZEON Award started since 2005 as the successor of The PJ Paper Award, which started since 1992.

This PJ ZEON Award is open to all of the first author of papers published in *Polymer Journal* [5] who is under 38 years of age. We are looking forward to receiving your submissions papers and many applications for the 2025 PJ

ZEON Award. Each year the SPSJ selects up to four most outstanding papers published by young authors in *Polymer Journal*, as recommended by the selection committee and board of directors of the SPSJ. Those who are interested should go to the SPSJ website (<https://main.spsj.or.jp/c5/pj/pj.htm>) for further information. Finally, we express our sincere appreciation to Zeon Corporation for their generous sponsorship of this award.

About the winners



Yingjun An received his Ph.D. degree from Yamanashi University under the supervision of Prof. Hidenori Okuzaki in 2020. Then, he joined Prof. Atsushi Takahara’s group as a postdoctoral researcher at Kyushu University. His research interests include polymer degradation, microplastics (MPs) formation in the environment, especially the degradation behavior of biodegradable plastics.

About the award article: The authors simulated the photooxidation and fragmentation behavior of isotactic polypropylene (*it*PP) in the laboratory using a weathering machine and a laboratory blender. The results indicate that crystallinity and crystal orientation effectively inhibit the photooxidation of *it*PP. Following artificial fragmentation testing, *it*PP films with lower crystallinity and orientation produced significantly smaller fragments. Fragments generated from oriented *it*PP are anisotropic, with their long axis aligned in the orientation direction. Additionally, an analysis of real ocean PP microplastics (MPs) revealed that

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fragments generated from UV-exposed oriented *it*PP films closely resembled real ocean MPs. This UV exposure and fragmentation test method could serve as a standardized approach for evaluating MP generation from plastics.



Tomoyuki Kurioka received his Ph.D. degree from Tokyo Institute of Technology in 2022 under the supervision of Prof. Shinsuke Inagi with a JSPS research fellow (DC1). He then joined Prof. Masato Sone's group as an assistant professor at Tokyo Institute of Technology (now Institute of Science Tokyo). His research interests include electrochemistry for the design of the conducting polymer-based functional materials.

About the award article: the author reported the anodic C(sp²)-H chlorination of the fluorene moieties in alternating π -conjugated polymers composed of 9,9-dioctylfluorene units and arylene units (P(FI-Ar)) using AlCl₃ as a chlorine source and a Lewis acid. The novel alternating π -conjugated polymers having sp²-chlorinated fluorene moieties in their main chain were successfully synthesized. The reaction mechanism was revealed by electrochemical measurements and density functional theory calculations. The emission wavelength of the chlorinated P(FI-Ar) derivatives in the film state was found to be longer than those of the pristine P(FI-Ar) derivatives. The developed approach enables access to alternating π -conjugated polymers having sp²-functionalized fluorene units.



Yuma Morimitsu received his Doctor of Engineering from Kyushu University in 2020 under the supervision of Prof. Keiji Tanaka. He was a JSPS research fellow (DC1) and a research scholar at Stony Brook University (Prof. Tadanori Koga) in 2017. In 2020, he joined Chinedum

Osuji's group at University of Pennsylvania as a post-doctoral researcher. Since 2022, he has been an assistant professor in Prof. Keiji Tanaka's group at Kyushu University. His research focuses on visualizing the structure and dynamics of polymer chains near solid interfaces.

About the award article: the authors investigated the morphologies of polymer chains spun onto solid substrates using deoxyribonucleic acid (DNA) as a model polymer. Clear atomic force microscopy (AFM) images revealed the impact of the adsorbed state at spinning and the competing effects of centrifugal force and the flow rate gradient on the resulting morphologies. These findings are expected to aid in designing polymer chain morphologies near solid interfaces, thereby optimizing the properties of polymer composites and multilayer organic devices.



Mineto Uchiyama received his Ph.D. degree from Nagoya University in 2016 under the supervision of Prof. Masami Kamigaito. He joined the faculty of Nagoya University as an assistant professor in 2016 and was promoted to lecturer in 2020. His research interests are precision polymer synthesis and developing new controlled polymerization systems.

About the award article: The authors reported a novel approach for synthesizing degradable polymers using 1,5-shift radical isomerization polymerization of vinyl ethers with transferable groups and degradable bonds in the side chains. In particular, designed vinyl ethers with thiocyno and *p*-methoxybenzyl ether groups underwent efficient radical isomerization polymerization via 1,5-shift of the cyano group, producing polymers with *p*-methoxybenzyl ether bonds in the main chain. The obtained polymers easily degraded to low molecular-weight products by acid treatment. This monomer could also undergo copolymerization with vinyl acetate via 1,5-shift isomerization to produce degradable poly(vinyl acetate). This is the first report demonstrating that 1,5-shift radical isomerization polymerization is useful for designing degradable vinyl polymers.

Compliance with ethical standards

Conflict of interest The author declares no competing interests.

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