

Personal Details (個人情報)

Name (氏名)	Surname	First Name	Last Updated (更新日)
	: IKURA (以倉)	Ryohei (峻平)	September 18 th , 2026
Nationality (国籍)	: Japan (日本国)		
Gender (性別)	: Male (男性)		
Date of birth (生年月日)	: January 30 th 1995		
Age (年齢)	: 31		
Mailing address (住所)	: Takayama-cho 8916-5, Ikoma, Nara 630-0192, Japan (〒630-0192 奈良県生駒市高山町 8916-5)		
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Current position (現職)	: Assistant Professor (助教), 2025.1~Present Graduate School of Science and Technology, Division of Materials Science (先端科学技術研究科 物質創成科学領域)		



Educational Background (学歴)

1. Postgraduate education (大学院博士課程)

Year (年月日)	: March 24 th , 2022 (平成 4 年 3 月 24 日)
University, Department (大学院、専攻)	: Department of Macromolecular Science, Graduate School of Science, Osaka University (大阪大学 大学院理学研究科 高分子科学専攻)
Research title (研究題目)	: Design of Polymeric Materials with Movable Cross-links and Their Characterization (可動性架橋を有する高分子材料の設計とその特性評価)
Supervisor (指導教官)	: Prof. Yoshinori Takashima (高島 義徳 教授)
Doctor's degree (学位)	: Doctor of Science, Ph.D. 博士 (理学)

2. Postgraduate education (大学院修士課程)

Year (年月日)	: March 25 th , 2019 (平成 31 年 3 月 25 日)
University, Department (大学院、専攻)	: Department of Macromolecular Science, Graduate School of Science, Osaka University (大阪大学 大学院理学研究科 高分子科学専攻)
Research title (研究題目)	: Preparation of Polymeric Materials with Supramolecular Cross-links and Their Mechanical Properties (超分子架橋を含む高分子材料の作製とその力学特性の評価)
Supervisor (指導教官)	: Prof. Yoshinori Takashima (高島 義徳 教授)
Master's degree	: Master of Science 修士(理学)

3. Undergraduate education (学部)

Year (年月日)	: March 22 nd , 2017 (平成 29 年 3 月 22 日)
University, Department (大学、学部)	: Department of Chemistry, School of Science, Osaka University (大阪大学 理学部 化学科)
Undergraduate degree (学位)	: Bachelor of Science 学士 (理学)
Major courses (専攻)	: Chemistry (化学科)

Work experience (職歴)

2025.1 ~ Present	Division of Materials Science, Graduate School of Science and Technology, Nara Institute of Science and Technology (奈良先端科学技術大学院大学 先端科学技術研究科 物質創成科学領域)	Assistant Professor (助教)
2024. 4. ~ 2024.6	Nanyang Technological University, Singapore [Concurrently: Department of Macromolecular Science, Graduate School of Science, Osaka University] (南洋理工大学院) [兼: 大阪大学 大学院理学研究科 高分子科学専攻]	Visiting Researcher (客員研究員)
2023. 4. ~ 2024.12	Department of Macromolecular Science, Graduate School of Science, Osaka University (大阪大学 大学院理学研究科 高分子科学専攻)	Specially Appointed Assistant Professor (特任助教)
2022. 7. ~ 2023.3	Department of Macromolecular Science, Graduate School of Science, Osaka University (大阪大学 大学院理学研究科 高分子科学専攻)	Specially Appointed Researcher (Full-time). (特任研究員(常勤))
2022. 4. ~ 2023.6	Department of Macromolecular Science, Graduate School of Science, Osaka University (大阪大学 大学院理学研究科 高分子科学専攻)	Specially Appointed Researcher (Part-time). (特任研究員(非常勤))

Academic Society Members (所属学会など)

The Society of Polymer Science, Japan (SPSJ, 高分子学会), The Chemical Society of Japan (CSJ, 日本化学会), The Japanese Society of Rheology (SRJ, 日本レオロジー学会), The Society of Rubber Science and Technology, Japan (日本ゴム協会), The Society of Cyclodextrins, Japan (シクロデキストリン学会).

Awards (受賞)

2024, November	Poster Award; The 40 th Cyclodextrin Symposium; The Society of Cyclodextrins, Japan (第40回シクロデキストリンシンポジウム ポスター賞 [シクロデキストリン学会])
2021, November	Presentation Award; The 37 th Cyclodextrin Symposium; The Society of Cyclodextrins, Japan (第37回シクロデキストリンシンポジウム ポスター賞 [シクロデキストリン学会])

Grant (研究助成: 研究代表者として)

2026. 9. ~ 2027. 3.	J-PEAKS, NAIST Senju Monju project: Phase 1, Early-career Researcher Support Program	J-PEAKS 千手・文殊プロジェクト(フェーズ 1) 若手研究者支援プログラム	多点水素結合を活用した高延伸性・柔軟性・長寿命性の 応力-ひずみセンサーの構築
2026. 4. ~ 2029. 3.	JSPS, Grant-in-Aid for Early-Career Scientists	日本学術振興会 科研 若手研究	複数種の結晶性オリゴマーによる強靱性・自己修復性・分 解性の両立
2025. 12. ~ 2028. 3.	The Mazda Foundation	公益財団法人 マツダ財団	キトサンナノファイバー複合による生分解性高分子材料の 剛直性・延伸性・分解性の両立
2025. 10. ~ 2028. 3.	JST ACT-X Trans-Scale	JST ACT-X トランススケール	結晶オリゴマーの相互作用による強靱化と自己修復性の 両立
2024. 4. ~ 2025. 3.	Toyota Physical and Chemical Research Institute	公益財団法人 豊田理化学研究所	熱力学的安定性と速度論的運動性の切り分けによる高分 子材料の強靱性・分解性の両立設計確立
2024. 4 ~ 2025. 3.	International Polyurethane Technology Foundation	公益財団法人 ポリウレタン国際技術振興 財団	熱力学的安定性と速度論的運動性の分割によるポリウレ タンの強靱性・分解性の両立
2023. 4. ~ 2024. 4	Iketani Science and Technology Foundation	公益財団法人 池谷科学技術財団	硬い凝集構造のほぐれに起因する機能付与および緩和 時間を用いた系統的設計の確立

Publication List

- Morishita, S.; Yoshida, H.; Ha, N. T.; Thuy, T. T.; Mai, N. N.; **Ikura, R.**; Kawahara, S.; Ajiro, H. "Investigation of Fracture Stress in Deproteinized Natural Rubber with Poly(trimethylene carbonate) Grafted Microcrystalline Cellulose for Improved Dispersibility" *ACS Omega* **2026**, *11*, 5959–5965.
- Qian, Y.; Liu, J.; Yamaoka, K.; Kosaba, S.; **Ikura, R.**; Yasuda, S.; Uegaki, T.; Fujii, Y.; Matsuba, G.; Uetsuji, Y.; Takashima, Y. "Interfacial Switching-Driven Photoactuator Adhesives for Selective Peeling and Substrate Recycling" *Matter & Light* **2026**, *1*, 100094.
- Zhou, X.; Liu, J.; Yamaoka, K.; **Ikura, R.**; Sugawara, A.; Matsuba, G.; Uyama, H.; Takashima, Y. "Light-Programmable Polyester Networks with Movable Cross-links for On-Demand Enzymatic Degradation" *ACS Nano* **2026**, *20*, 10442–10455.
- Kosaba, S.; Yamaoka, K.; **Ikura, R.**; Arai, T.; Takashima, Y. "Knitted and Cross-linked Elastomers for Tough and Removable Pressure Sensitive Adhesives Enabling Stretch-Induced Debonding" *Chemical Engineering Journal* **2026**, *527*, 171633.
- Hu, X.; Yamaoka, K.; **Ikura, R.**; Osaki, M.; Kitamura, Y.; Takahashi, H.; Matsuba, G.; Takashima, Y. "Highly Sensitive and Stretchable

- Strain Sensors Based on Conductive Elastomer Composites” *ACS Polymers Au* **2026**, 6, 325–337.
- (6) Yamaoka, K.; Wada, T.; Ogasa, I.; Komyo, T.; Luo, C.; **Ikura, R.**; Hino, M.; Yamada, M.; Seto, H.; Fujii, Y.; Uetsuji, Y.; Takashima, Y. “Supramolecular Interface Engineering via Interdiffusion for Reusable and Dismantlable Polymer Adhesion” *Advanced Materials* **2026**, 38, e07939.
 - (7) Liu, J.; Yamaoka, K.; **Ikura, R.**; Sugawara, A.; Takahashi, Y.; Kure, B.; Takenaka, N.; Uyama, H.; Takashima, Y. “Tough, Multifunctional, and Biodegradable Polyurethanes Enabled by Structure-Property Tuning for Versatile Applications” *Macromolecules* **2025**, 58, 12306–12316.
 - (8) Kawai, Y.; Park, J.; Motokawa, R.; **Ikura, R.**; Murayama, S.; Yamaoka, K.; Fujii, Y.; Ikemoto, Y.; Tanaka, M.; Matsuba, G.; Kato, T.; Takashima, Y. “Effects of the Hydration States of Water Molecules on the Mechanical Properties of Dual Movable Crosslinked Polymeric Gels” *ACS Applied Polymer Materials* **2025**, 7, 7767–7776.
 - (9) Yashiro, S.; Yoshida, H.; Thuy, T. T.; Ha, N. T.; Mai, N. N.; Kawahara, S.; **Ikura, R.**; Ajiro, H. “N-Vinylamides as Structural Isomers of Protein Grafted onto Deproteinized Natural Rubber and Their Mechanical Strengths” *Macromol. Rapid Commun.* **2025**, e00344.
 - (10) Joka, Y.; Yamaoka, K.; **Ikura, R.**; Komyo, T.; Luo, C.; Sugawara, A.; Uyama, H.; Uetsuji, Y.; Takashima, Y. “Light Stimuli-Responsive Degradable and Tough Polymeric Materials with Movable Crosslinks.” *ACS Applied Polymer Materials* **2025**, 7, 3806–3814.
 - (11) Matsumura, Y.; Yamaoka, K.; **Ikura, R.**; Takashima, Y. “Light Stimuli-Responsive Degradable and Tough Polymeric Materials with Movable Crosslinks.” *ACS Applied Materials & Interfaces* **2025**, 17, 20261–20269.
 - (12) Qian, Y.; Kosaba, S.; **Ikura, R.**; Yamaoka, K.; Takashima, Y. “Design of Functional and Stable Adhesion Systems using Reversible and Movable Crosslinked Materials.” *Polym. J.* **2025**, 57, 491–512.
 - (13) Liu, J.; **Ikura, R.**; Yamaoka, K.; Sugawara, A.; Takahashi, Y.; Kure, B.; Takenaka, N.; Park, J.; Junsu, Uyama, H.; Takashima, Y. “Exploring Enzymatic Degradation, Reinforcement, Recycling and Upcycling of Poly(ester)s-Poly(urethane) with Movable Crosslinks.” *Chem* **2025**, 11, 102327.
 - (14) Yamashita, N.; **Ikura, R.**; Yamaoka, K.; Kato, N.; Kamei, M.; Ogura, K.; Igarashi, M.; Nakagawa, H.; Takashima, Y. “Mechanical Properties and Molecular Adhesion Exhibited by Inorganic-Organic Composite Elastomers.” *Polymer Chemistry* **2024**, 15, 4196–4203.
 - (15) Ding, Y.; **Ikura, R.**; Yamaoka, K.; Nishida, K.; Sugawara, A.; Uyama, H.; Nara, S.; Takashima, Y. “Reinforcement and Controlling the Stability of Poly(ϵ -caprolactone)-Based Polymeric Materials via Reversible and Movable Cross-Links Employing Cyclic Polyphenylene Sulfide” *ACS Macro Letters* **2024**, 13, 1265–1271.
 - (16) Nishida, K.; **Ikura, R.**; Yamaoka, K.; Urakawa, O.; Konishi, T.; Inoue, T.; Matsuba, G.; Tanaka, M.; Takashima, Y. “Relation between the Water Content and Mechanical Properties of Hydrogels with Movable Cross-Links” *Macromolecules* **2024**, 57, 7745–7754.
 - (17) Yamaoka, K.; **Ikura, R.**; Osaki, M.; Shirakawa, H.; Takahashi, K.; Takahashi, H.; Ohashi, Y.; Takashima, Y. “Viscoelastic Behavior for Optimizing the Self-Healing of Gels with Host-Guest Inclusion Complexes” *Polym. J.* **2024**, 56, 1031–1039.
 - (18) Kosaba, S.; **Ikura, R.**; Yamaoka, K.; Arai, T.; Takashima, Y. “Recyclable Tough Adhesive Sheets with Movable Cross-links for Sustainable Use” *ACS Applied Materials & Interfaces* **2024**, 16, 25393–25403.
 - (19) Qian, Y.; **Ikura, R.**; Kawai, Y.; Park, J.; Yamaoka, K.; Takashima, Y. “Improvement in Cohesive Properties of Adhesion Systems using Movable Crosslinked Materials with Stress Relaxation Properties” *ACS Applied Materials & Interfaces* **2024**, 16, 3935–3943.
 - (20) Fujiwara, Y.; Luo, C.; **Ikura, R.**; Takashima, Y.; Uetsuji, Y. “Multiscale characterization and design of cellulose composites based on polymers with movable cross-links” *Polymer* **2024**, 291, 126603.
 - (21) Kokuzawa, T.; Hirabayashi, S.; Ikemoto, Y.; Park, J.; **Ikura, R.**; Takashima, Y.; Higuchi, Y.; Matsuba, G. “Absorption of water molecules on the surface of stereocomplex-crystal spherulites of polylactides: An in-situ FT-IR spectroscopy investigation” *Polymer* **2024**, 298, 126922.
 - (22) Wada, T.; Park, J.; Yamaoka, K.; Asaki, Y.; Sugawara, A.; **Ikura, R.**; Takahashi, Y.; Takenaka, N.; Uetsuji, Y.; Uyama, H.; Takashima, Y. “Material Design of Citric Acid-Modified Cellulose Composite Polymeric Materials with Both Tough and Sustainable Enhancement by Multiple Noncovalent Bonds” *ACS Applied Polymer Materials* **2023**, 5, 10334–10341.
 - (23) Yamashita, N.; Yamaoka, K.; **Ikura, R.**; Yoshida, D.; Park, J.; Kato, N.; Kamei, M.; Ogura, K.; Igarashi, M.; Nakagawa, H.; Takashima, Y. “Enhancement of the Mechanical Properties of Organic-Inorganic Hybrid Elastomers by Introducing Movable and Reversible Crosslinks” *Soft Matter* **2023**, 19, 9074–9081.
 - (24) Zhou, X.; **Ikura, R.**; Jin, C.; Yamaoka, K.; Park, J.; Takashima, Y. “Supramolecular Photoresponsive Polyurethane with Movable Crosslinks Based on Photoisomerization of Azobenzene” *Aggregate* **2023**, e457.
 - (25) **Ikura, R.**; Kajimoto, K.; Park, J.; Murayama, S.; Fujiwara, Y.; Osaki, M.; Suzuki, T.; Shirakawa, H.; Kitamura, Y.; Takahashi, H.; Ohashi, Y.; Obata, S.; Harada, A.; Ikemoto, Y.; Nishina, Y.; Uetsuji, Y.; Matsuba, G.; Takashima, Y. “Highly Stretchable Stress-Strain Sensor from Elastomer Nanocomposites with Movable Cross-links and Ketjenblack” *ACS Polymers Au* **2023**, 3, 394–405.
 - (26) Park, J.; Shimizu, Y.; Zhou, X.; **Ikura, R.**; Matsuba, G.; Takashima, Y. “Water Content-Dependent Switching of the Bending Behavior of Photoresponsive Hydrogels Composed of Hydrophilic Acrylamide-Based Main Chains and Hydrophobic Azobenzene” *Gels* **2023**, 9, 658.
 - (27) Park, J.; Sasaki, Y.; Ishii, Y.; Murayama, S.; Ohshiro, K.; Nishiura, K.; **Ikura, R.**; Yamaguchi, H.; Harada, A.; Matsuba, G.; Washizu, H.; Minami, T.; Takashima, Y. “Leaf-Inspired Host-Guest Complexation-Dictating Supramolecular Gas Sensors” *ACS Appl. Mater. Interfaces* **2023**, 15, 39777–39785.
 - (28) Park, J.; Asaki, Y.; Fujiwara, Y.; Wada, T.; **Ikura, R.**; Sugawara, A.; Konishi, T.; Matsuba, G.; Uetsuji, Y.; Uyama, H.; Takashima, Y. “Tough citric acid-modified cellulose-containing polymer composites with three components consisting of movable cross-links and hydrogen bonds” *Polym. J.* **2023**, 55, 1151–1164. (DOI:10.1038/s41428-023-00823-3)
 - (29) Yoshida, D.; Park, J.; Yamashita, N.; **Ikura, R.**; Kato, N.; Kamei, M.; Ogura, K.; Igarashi, M.; Nakagawa, H.; Takashima, Y. “Preparation of Mechanically Tough Poly(dimethyl siloxane) through the Incorporation of Acetylated Cyclodextrin-Based Topologically Movable Cross-links” *Polym. Chem.* **2023**, 14, 3277–3285.
 - (30) Kawai, Y.; Park, J.; Murayama, S.; **Ikura, R.**; Osaki, M.; Konishi, T.; Matsuba, G.; Takashima, Y. “Hybridizing a dual-cross network and a linear glassy polymer for dynamic contributions to high mechanical toughness based on phase-separated structures” *Macromolecules* **2023**, 56, 4503–4512.

- (31) Ding, Y.; Park, J.; **Ikura, R.**; Nara, S.; Toda, K.; Takashima, Y. "Cyclic Polyphenylene Sulfide as Additive to Improve the Mechanical Properties of Polystyrene-based Materials" *Macromolecules* **2023**, 56, 3132-3140.
- (32) Lai, H.; Jin, C.; Park, J.; **Ikura, R.**; Takashima, Y.; Ouchi, M. "A Transformable and Bulky Methacrylate Monomer That Enables the Synthesis of an MMA-nBA Alternating Copolymer: Sequence-Dependent Self-Healing Properties" *Angew. Chem.Int. Ed.* **2023**, 62, e202218597
- (33) Yoshida, D.; Park, J.; **Ikura, R.**; Yamashita, N.; Yamaguchi, H.; Takashima, Y. "Self-Healable Poly(dimethyl siloxane) Elastomers Based on Host-Guest Complexation between Methylated β -Cyclodextrin and Adamantane" *Chem. Lett.* **2023**, 52, 93-96.
- (34) Uetsuji, Y.; Hamamoto, R.; Chao, L.; Tsuyuki, Y.; Tsuchiya, K.; **Ikura, R.**; Takashima, Y. "Composite Hydrogels with Host-Guest Using Cellulose Nanocrystal as Supramolecular Interaction Filler" *Int. J. Mech. Sci.* **2023**, 258, 108581.
- (35) **Ikura, R.**; Murayama, S.; Park, J.; Ikemoto, Y.; Osaki, M.; Yamaguchi, H.; Harada, A.; Matsuba, G.; Takashima, Y. "Fabrication and Mechanical Properties of Knitted Dissimilar Polymeric Materials with Movable Cross-Link" *Molecular Systems Design & Engineering* **2022**, 7, 733-745. **[HOT MSDE article]**
- (36) Kawai, Y.; Park, J.; Ishii, Y.; Urakawa, O.; Murayama, S.; **Ikura, R.**; Osaki, M.; Ikemoto, Y.; Yamaguchi, H.; Harada, A.; Inoue, T.; Washizu, H.; Matsuba, G.; Takashima, Y. "Preparation of Dual Cross-Network Polymers by Knitting Method and Evaluation of Their Mechanical Properties." *NPG Asia Mater.* **2022**, 14:32, 1-11
- (37) Osaki, M.; Yonei, S.; Ueda, C.; **Ikura, R.**; Park, J.; Yamaguchi, H.; Harada, A.; Tanaka, M.; Takashima, Y. "Mechanical Properties with Respect to Water Content of Host-Guest Hydrogels." *Macromolecules* **2021**, 54, 8067-8076.
- (38) **Ikura, R.**; Ikemoto, Y.; Osaki, M.; Yamaguchi, H.; Harada, A.; Takashima, Y. "Preparation of Hydrophilic Polymeric Materials with Movable Cross-Linkers and their Mechanical Property." *Polymer* **2020**, 196, 122465.
- (39) Okano, N.; Osaki, M.; **Ikura, R.**; Takashima, Y.; Yamaguchi, H.; Harada, A. "Bulk Copolymerization of Host-Guest Monomers with Liquid-type Acrylamide Monomers for Supramolecular Materials Applications." *ACS Appl. Polym. Mater.* **2020**, 2, 1553-1560.
- (40) **Ikura, R.**; Park, J.; Osaki, M.; Yamaguchi, H.; Harada, A.; Takashima, Y. "Supramolecular Elastomers with Movable Cross-Linkers Showing High Fracture Energy Based on Stress Dispersion." *Macromolecules* **2019**, 52, 6953-6962.
- (41) Nomimura, S.; Osaki, M.; Park, J.; **Ikura, R.**; Takashima, Y.; Yamaguchi, H.; Harada, A. "Self-Healing Alkyl Acrylate-Based Supramolecular Elastomers Cross-Linked via Host-Guest Interactions." *Macromolecules* **2019**, 52, 2659-2668.

Reviews, Books etc.

- (1) 山岡賢司、**以倉峻平**、銭韵鵬、高島義徳「可逆性結合・可動性架橋を用いた自己修復性接着システムの構築」『接着と剥離のための高分子設計と応用』シーエムシー出版、第3編 第4章（2023年）
- (2) **以倉峻平**、朴峻秀、高島義徳「複合架橋エラストマー（Elastomers with Multiple Cross-Links）」『持続可能な社会を支えるゴム・エラストマー（CSJ カレントレビュー：46）新素材・自己修復・強靱化と最先端評価技術』化学同人出版、46、Chapter7（2023年）
- (3) **Ikura, R.**; Park, J.; Osaki, M.; Yamaguchi, H.; Harada, A.; Takashima, Y. "Design of Self-Healing and Self-Restoring Materials Utilizing Reversible and Movable Crosslinks." *NPG Asia Mater.* **2022**, 14:10, 1-17.
- (4) 朴峻秀、**以倉峻平**、河合優作、金昌明、原田明、高島義徳「可逆性・可動性架橋を利用した機能性高分子材料の創製」『解説シリーズ 23：SDGs に対応するためのポリマー材料開発最前線』日本接着学会誌、58号、第14節（2022年）
- (5) 小西昂、**以倉峻平**、大崎基史、高島義徳、原田明「可逆性結合を用いた高分子材料の設計とその機能、応用」『重合開始剤、硬化剤、架橋剤の選び方、使い方とその事例』技術情報協会、第3章、第20節（2021年）
- (6) **以倉峻平**、大崎基史、高島義徳、原田明「ホスト・ゲスト相互作用による高分子材料への機能付与」『自己修復材料、自己組織化、形状記憶材料の開発と応用事例』技術情報協会、第1章、第1節（2020年）