

Curriculum Vitae

Yoshiaki Uchida



Graduate School of Engineering Science
Osaka University
Machikaneyama-cho, Toyonaka,
Osaka, Japan 560-8531
Born: Dec. 30, 1981, Chiba, Japan.

tel. +81-6-6850-6256

email: yuchida@cheng.es.osaka-u.ac.jp

<http://www.cheng.es.osaka-u.ac.jp/nishiyamalabo/index.html>

Research Interests

Organic Materials Chemistry, Soft Matter Physics and Physical Chemistry:

- Synthesis of Liquid Crystals Containing Nitroxide Radical Moieties.
- Fabrication of Liquid Crystal Emulsions
- Electron Paramagnetic Resonance Spectroscopy of the Liquid Crystals
- Defect Structure in Liquid Crystals
- Magnetically Controlled Functional Materials
- Magnetically Manipulated Systems

Education

Kyoto University

Ph.D. in Human and Environmental Studies, 2009. (Advisor: Prof. R. Tamura).

Dissertation title: "Studies on Magnetic, Electric, and Optical Properties in the Condensed Phase of Nitroxide Radicals"

A.M. in Human and Environmental Studies, 2006.

Dissertation title: "Synthesis and Properties of Paramagnetic Organic Compounds"

B.S. in Integrated Human Studies with Honors, 2004

Employment

2008.4–2010.3 Research Fellow of the Japan Society for the Promotion of Science, Graduate School of Human and Environmental Studies, Kyoto University

2009.6-2010.3 Post-doc in Weitz Lab, School of Engineering and Applied Sciences, Harvard University

2010.4-2011.9 Research Fellow of the Japan Society for the Promotion of Science, Graduate School of Science, Kyoto University

2011.10-2012.3 Part-time Lecturer, Institute for the Promotion of Excellence in Higher Education, Kyoto University

2011.10-2014.9 Assistant Professor, Graduate School of Engineering Science, Osaka University

2012.11-2013.1 Visiting Scholar in Weitz Lab, School of Engineering and Applied Sciences, Harvard University

2013.10- Japan Science and Technology Agency, PRESTO

2014.10- Associate Professor, Graduate School of Engineering Science, Osaka University

Societies

The Society of Chemical Engineers, Japan

American Chemical Society

The Chemical Society of Japan
The Physical Society of Japan
Japanese Liquid Crystal Society
International Liquid Crystal Society
Japanese Society for Molecular Science
The Society of Electron Spin Science and Technology
The Society of Polymer Science, Japan
Japan Zeolite Association

Awards

- 12) The JLCS Best Paper Award, Japanese Liquid Crystal Society, 2023. [Paper No. 114]
- 11) Osaka University Prize, Osaka University, 2020.
- 10) The Young Scientists' Award, The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, 2020.
- 9) The JLCS Best Paper Award, Japanese Liquid Crystal Society, 2017. [Paper No. 44]
- 8) The SCEJ Award for Outstanding Young Researcher, The Society of Chemical Engineering, Japan, 2016.
- 7) Presidential Award for Encouragement, Osaka University, 2015.
- 6) Presidential Award for Encouragement, Osaka University, 2014.
- 5) SEST Young Investigator Award, The Society of Electron Spin Science and Technology, 2013.
- 4) SEST Excellent Presentation Award, The 51st Annual Meeting of the Society of Electron Spin Science and Technology, 2012.
- 3) The JLCS Best Paper Award, Japanese Liquid Crystal Society, 2011. [Paper No. 17]
- 2) The JLCS Young Researcher's Award, Japanese Liquid Crystal Society, 2009.
- 1) Poster Award, International Molecular Chirality Conference in Toyama, 2006.

Lectures

- 24) "Three-dimensionally printed microwell for observing single liquid crystalline shell," SPIE Photonics West OPTO, The Moscone Center, San Francisco, California, USA, January 31, 2024.
- 23) "Cholesteric Liquid Crystalline Shells," Weitz Lab, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, USA, June 30, 2023.
- 22) "Control of Size, Position and Orientation of Photonic LC Shells," OLC2021 Satellite Work Shop (SWS) 2022, Bankoku Shinryokan, Nago, Okinawa, Japan, September 26, 2022.
- 21) "Importance of Molecular Mobility of Nitroxide Radical Liquid Crystals," The 6th Awaji International Workshop on "Electron Spin Science & Technology: Biological and Materials Science Oriented Applications" (6th AWEST 2019), Awaji Yumebutai International Conference Center, Awaji, Hyogo, Japan, June 18, 2019.
- 20) "Photonic Microcapsule with Magnetic LC Shell," SPIE Photonics West OPTO, The Moscone Center, San Francisco, California, USA, February 3, 2019.
- 19) "Nanosheet Formation in Sandwich-like Reaction Field," 9th Italian-Japanese Workshop on Liquid Crystals, Collegio Cairolì, Pavia, Italy, September 17, 2018.
- 18) "Materials Synthesis in Liquid Crystal," Weitz Lab Group Meeting, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA, USA, August 21, 2018.

- 17) "Functionalization by Self-Assembly in Soft Matter," Seminar, Department of Chemistry, Queen's University, Kingston, Ontario, Canada, August 13, 2018.
- 16) "Complex fluids consisting of molecules communicating with each other," The 2nd Joint Alumni Association of Tamura and Tsue Research Groups, Kyoto University, Kyoto, Japan, May 19, 2018.
- 15) "Fabrication and Functions of Liquid Crystalline Microcapsules," Progress In Electromagnetics Research Symposium, Nanyang Technological University, Singapore, November 20, 2017.
- 14) "Magnetically Controllable Liquid Crystalline Shell," Invited Seminar at the CNR Institute of Membrane Technology, Padova Section, Padova, Italy, September 8, 2017.
- 13) "Liquid Crystalline Shell: as a Material and as a Field," Physics Seminar, Room BSC 1.04, Campus Limpertsberg, The University of Luxembourg, Luxembourg, Luxembourg, March 20, 2017.
- 12) "Nanosheet Synthesis in Hyperswollen Lyotropic Lamellar Phase," The 12th International Conference on Nano-Molecular Electronics, Kobe International Conference Center, Kobe, Japan, December 14, 2016.
- 11) "Cholesteric Liquid Crystalline Microcapsule as Multifunctional Photonic System," The 8th Japanese-Italian Liquid Crystal Workshop, Kyoto International Conference House (Kokoka), Kyoto, Japan, July 5, 2016.
- 10) "Magnetic Liquid Crystals without Metals," Japan-Germany-Workshop on "Molecular Technology," Wallstreet Hotel, Berlin, Germany, March 18, 2016.
- 9) "Organic Radical Fluids: Magnetism and Microfluidics," Soft matter seminar, Sreda, Seminarska soba fizike, F5, IJS, Ljubljana, Slovenia, March 16, 2016.
- 8) "Inhomogeneity of Intermolecular Magnetic Interactions in Liquid Crystalline Phases of Nitroxide Radicals," The International Chemical Congress of Pacific Basin Societies 2015, Hawaii Convention Center, Honolulu, HI, USA, December 19, 2015.
- 7) "Magnetic Interactions in Liquid Crystalline Phases of Nitroxide Radicals," 1st International Caparica Christmas Congress on Translational Chemistry 2015, Aldeia dos Capuchos Golf & SPA, Caparica, Portugal, December 10, 2015.
- 6) "Luminescence enhancement in cholesteric liquid crystalline microcapsules," EMN Qingdao Meeting 2015, Grand Regency Hotel, Qingdao, China, June 16, 2015.
- 5) "Magnetically-controllable all-organic droplets and capsules," the EMN Meeting on Droplets 2015, The Holiday Inn Resort Phuket, Phuket, Thailand, May 10, 2015.
- 4) "Cholesteric liquid crystalline core-shell emulsion droplets," EMN Summer Meeting, The Westin Resort & Spa, Cancun, Mexico, June 11, 2014.
- 3) "Nonuniform Intermolecular Magnetic Interactions in Nitroxide Radical Liquid Crystals," The 7th Japanese-Russian Workshop on Open Shell Compounds and Molecular Spin Devices, Awaji Yumebutai, Hyogo, Japan, November 19, 2013.
- 2) "Magnetic Interactions Observed in All-Organic Nitroxide Radical Liquid Crystals," MDF Workshop "Open-shell Organic Molecules— Synthesis and Electronic Structure Freedom", Umeda Sky Building,

Osaka, Japan, October 7, 2011.

1) "Paramagnetic Liquid Crystals without Metals," Brandeis NRSEC Seminar, Brandeis University, Waltham, MA, March 11, 2010.

Papers

147) "Undemanding synthesis of N, P co-doped carbon nanosheets for hydrogen evolution reaction: Combining experimental quantitative analysis and DFT calculation corroboration," X. Yang, R. Takada, X. Li, K. Narimatsu, K. Miyake, Y. Uchida, N. Nishiyama, *J. Mater. Chem. A*, Royal Society of Chemistry, in press.

146) "Cr⁶⁺ Loaded Lewis Acidic Sn-Beta Zeolites as Reusable Catalysts for Selective Production of Light Olefins via Polyolefin Cracking," Shinya Kokuryo, S. Tsubota, K. Miyake, Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *Adv. Sustain. Syst.*, Wiley, in press.

145) "Metal-free N, P-Codoped Carbon for Syngas Production with Tunable Composition via CO₂ Electrolysis: Addressing the Competition Between CO₂ Reduction and H₂ Evolution," R. Takada, H. Okada, K. Narimatsu, K. Miyake, Y. Uchida, E. Tsuji, N. Nishiyama, *ChemSusChem*, Wiley, in press.

144) "Low-Temperature Liquid-Crystalline Nitroxide Radical," Y. Uchida,* T. Akita, T. Ohkochi, X.-Q. Ma, D. Kiyohara, S. Nakagami, T. Yamazaki, N. Nishiyama, *J. Mater. Chem. C*, Royal Society of Chemistry, **13**, 54–60 (2025). **Inside Front Cover**

143) "Understanding the Role of the Surface Acidity of MFI Zeolites during LDPE Cracking: Decomposition Temperature and Product Distribution," S. Tsubota, S. Kokuryo, K. Miyake, Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *ACS Catal.*, American Chemical Society, **14**, 18145–18155 (2024).

143) "Low-Temperature Liquid-Crystalline Nitroxide Radical," Y. Uchida,* T. Akita, T. Ohkochi, X.-Q. Ma, D. Kiyohara, S. Nakagami, T. Yamazaki, N. Nishiyama, *J. Mater. Chem. C*, Royal Society of Chemistry, **13**, 54–60 (2025). **Inside Front Cover**

142) "Core–Shell-Structured Ni/ZSM-5@Silicalite-1 Zeolite Catalyst with a High Catalytic Performance for Ethylene to Propylene Reaction," S. Kubota, Y. Murata, K. Miyake, Y. Uchida, M. Miyamoto, N. Nishiyama, *Energy & Fuels*, American Chemical Society, **38**, 21268–21276 (2024).

141) "Cr-promoted Ni Catalyst on Dealuminated Zeolite for Producing Hydrogen via Catalytic Decomposition of Methane," K. Tamura, S. Kokuryo, H. Kitamura, J. A. Hernandez Gaitan, S. Tsubota, K. Miyake, Y. Uchida, M. Miyamoto, N. Nishiyama, *Ind. Eng. Chem. Res.*, American Chemical Society, **63**, 19449–19456 (2024).

140) "Nitrogen, fluorine, and phosphorus tri-doped porous carbon with high electrical conductivity as an excellent metal-free electrocatalyst for oxygen reduction reaction," R. Takada,* K. Narimatsu, Y. Taniguchi, X. Yang, K. Miyake,* Y. Uchida, N. Nishiyama, *ChemCatChem*, Wiley, **16**, e202400749 (2024).

139) "Ni Particle Morphology and Support Effect in the Catalytic Decomposition of Methane: Into the Design of Novel, High Yield Catalyst for Catalytic Decomposition of Methane," J. A. Hernandez Gaitan, X. Li, K. Tamura, K. Miyake,* Y. Uchida, N. Nishiyama, *Adv. Energy Sustainability Res.*, Wiley, **5**, 2400096 (2024).

138) "Selective Recovery of Light Olefins from Polyolefin Catalyzed by Lewis Acidic Sn-Beta Zeolites

without Brønsted Acidity,” S. Kokuryo,* K. Tamura, S. Tsubota, K. Miyake,* Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *Catal. Sci. Technol.*, The Royal Society of Chemistry, **14**, 3589–3595 (2024). **Front Cover**

137) “Straightforward synthesis of S-doped Co₂P nanoparticles on a P, S co-doped carbon substrate by using ion exchange resin for hydrogen evolution reaction,” X. Yang, R. Takada, Y. Taniguchi, K. Miyake,* Y. Uchida, N. Nishiyama, *Fuel*, Elsevier, **370**, 131674 (2024).

136) “Exploring the effect of Brønsted acidity of MFI-type zeolites on catalytic cracking temperature of low density polyethylene,” S. Tsubota, S. Kokuryo, K. Tamura, K. Miyake, Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *Catal. Sci. Technol.*, The Royal Society of Chemistry, **14**, 1369–1374 (2024).

135) “Fluoropyridine-medicated zeolite templating method for N/F co-doped carbon with high electrocatalytic performance on oxygen reduction reaction,” Y. Taniguchi, S. Kokuryo, R. Takada, X. Yang, K. Miyake,* Y. Uchida, N. Nishiyama, *Electrochem. Commun.*, Elsevier, **160**, 107665 (2024).

134) “Promoted propane dehydrogenation over Co confined within core-shell silicalite-1 zeolite crystals,” S. Kubota, T. Sumi, H. Kitamura, K. Miyake, Y. Uchida, N. Nishiyama, *Catal. Sci. Technol.*, The Royal Society of Chemistry, **14**, 1201–1208 (2024).

133) “Synthesis of pyridinic N-rich N-doped carbon by a zeolite template method using pyridine as a deposition source,” Y. Taniguchi, S. Kokuryo, R. Takada, X. Yang, K. Miyake, Y. Uchida, N. Nishiyama, *Carbon Reports*, **3**, 11–17 (2024).

132) “Control of Composition and Surface Area of Aluminosilicates by Tuning Base Catalyst Concentration,” J. A. Hernandez Gaitan, K. Sasaki, K. Miyake, Y. Uchida,* N. Nishiyama, *Chem. Lett.*, The Chemical Society of Japan, **53**, upad034 (2024).

131) “Facile synthesis of carbon co-doped with nitrogen and phosphorus as metal-free electrocatalyst with precisely controlled pore structure and dual heteroatoms for oxygen reduction reaction,” R. Takada,* Y. Shu, Y. Taniguchi, X. Yang, K. Miyake,* Y. Uchida, N. Nishiyama, *Carbon*, Elsevier, **218**, 118719 (2024).

130) “Facile Synthesis of N-Doped Metal-Free Catalysts for Oxygen Reduction Reaction via a Self-Sacrificed Template Method Using Zinc Amino-Acid Complex,” Y. Shu, R. Takada, Y. Taniguchi, X. Yang, K. Miyake,* Y. Uchida, N. Nishiyama, *ACS Omega*, American Chemical Society, **8**, 46276–46283 (2023).

129) “Dry Reforming of Methane with Suppressed Carbon Deposition over Cr- and Ni-Loaded Dealuminated β Zeolites,” K. Tamura, D. Murata, T. Sumi, S. Kokuryo, H. Kitamura, S. Tsubota, K. Miyake,* Y. Uchida, M. Miyamoto, N. Nishiyama, *Energy Fuels*, American Chemical Society, **37**, 18945–18951 (2023).

128) “Stable and selective conversion of ethylene to propylene and butylene using Ni-loaded dealuminated Beta zeolite catalyst,” H. Kitamura, T. Sumi, S. Kubota, S. Kokuryo, K. Tamura, K. Miyake,* Y. Uchida, M. Miyamoto, N. Nishiyama, *Appl. Catal. A: Gen.*, Elsevier, **668**, 119429 (2023).

127) “Utilization of Deposited Coke on Zeolites During the Catalytic Cracking of Nitrogen-Containing Polymer for the Oxygen Reduction Reaction,” S. Kokuryo,* Y. Shu, R. Takada, Y. Taniguchi, K. Miyake,* Y. Uchida, G. Alemany-Molina, E. Morallón, D. Cazorla-Amorós, N. Nishiyama, *Adv. Sustain. Syst.*, Wiley, **7**, 2370035 (2023). **Back Cover**

126) “Facile and Cost-effective Synthesis of CoP@N-doped Carbon with High Catalytic Performance for

Electrochemical Hydrogen Evolution Reaction,” X. Yang, Y. Shu, R. Takada, Y. Taniguchi, K. Miyake,* Y. Uchida, N. Nishiyama, *Chem. Asian J.*, Wiley, **18**, e202300534 (2023).

125) “Coking Reduction of Cr-loaded Beta Zeolite during Polymer Cracking: Hydrocracking of Aromatics by Synergistic Effect of Cr⁶⁺ and Zeolitic Acid Sites,” S. Kokuryo,* K. Tamura, S. Tsubota, K. Miyake,* Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *ChemCatChem*, Wiley, **15**, e202300461 (2023). **Front Cover**

124) “A zeolite templating method for fabricating edge site-enriched N-doped carbon materials,” Y. Taniguchi, Y. Shu, R. Takada, K. Miyake,* Y. Uchida, N. Nishiyama, *Nanoscale Adv.*, The Royal Society of Chemistry, **5**, 4233–4239 (2023).

123) “Lasing Behavior of a Nematic Liquid Crystal Microdroplet Depending on Irradiation Position,” Y. Uchida,* M. Kumazaki, T. Naruta, N. Nishiyama *Opt. Mater. Express*, Optical Society of America, **13**, 1609–1615 (2023).

122) “Experimental and Theoretical Elucidation of Metal-free Sulfur and Nitrogen Co-doped Porous Carbon Materials with an Efficient Synergistic Effect on the Oxygen Reduction Reaction,” Y. Shu,* Y. Takada, R. Takada, Y. Taniguchi, K. Miyake,* Y. Uchida, C. Y. Kong, N. Nishiyama, *Adv. Mater. Interfaces*, Wiley-VCH, **10**, 2300088 (2023).

121) “Improved methane dehydroaromatization reaction over Mo and Cr co-doped ZSM-5 catalyst,” K. Miyake,* T. Sumi, S. Kokuryo, H. Kitamura, J. A. Hernandez Gaitan, Y. Uchida, N. Nishiyama, *New J. Chem.*, The Royal Society of Chemistry, **47**, 6054–6057 (2023).

120) “Detection of alkali and alkaline earth metal ions using birefringence of hyperswollen lamellar phase,” K. Sasaki, S. Matoba, Y. Uchida,* N. Nishiyama, *RSC Adv.*, The Royal Society of Chemistry, **13**, 4007–4010 (2023).

119) “Formation of Ni species anchored on silicalite-1 zeolite framework as a catalyst with high coke deposition resistance on dry reforming of methane,” T. Sumi, D. Murata, H. Kitamura, S. Kubota, K. Miyake,* Y. Uchida, M. Miyamoto, N. Nishiyama, *Cryst. Growth Des.*, American Chemical Society, in press.

118) “Solvent-free soft-template synthesis of highly-ordered mesoporous carbons via self-assembly promoted by Mg(NO₃)₂,” X. Li, H. Yoshikawa, K. Ishihara, K. Miyake,* Y. Uchida, N. Nishiyama, *Langmuir*, American Chemical Society, **39**, 2036–2042 (2023).

117) “Through-Space Magnetic Interaction of cis-Azobenzene Biradical,” Y. Uchida,* K. Hino, T. Kato, R. Tamura, *Cryst. Growth Des.*, American Chemical Society, **23**, 1641–1647 (2023). **Supplemental Cover**

116) “High coke deposition resistance by Cr loading on zeolite defects: reduced regeneration in cracking reactions,” S. Kokuryo,* K. Tamura, K. Miyake,* Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *Catal. Sci. Technol.*, The Royal Society of Chemistry, **12**, 7270–7274 (2022).

115) “A Nanosheet Molding Method to Estimate the Size of Bilayers Suspended in Liquid,” K. Sasaki, J. A. Hernandez Gaitan, Y. Tokuda, K. Miyake, Y. Uchida,* N. Nishiyama, *J. Mater. Chem. C*, The Royal Society of Chemistry, **10**, 15816–15821 (2022). **Inside Back Cover**

114) “Amorphous Aluminosilicate Nanosheets as Universal Precursors for the Synthesis of Diverse Zeolite Nanosheets for Polymer-Cracking Reactions,” K. Sasaki, J. A. Hernandez Gaitan, T. Okue, S. Matoba, Y.

Tokuda, K. Miyake, Y. Uchida,* N. Nishiyama, *Angew. Chem. Int. Ed.*, Wiley-VCH, **61**, e202213773 (2022).

113) “Amino-Acid-Functionalized Metal–Organic Frameworks as Excellent Precursors toward Bifunctional Metal-Free Electrocatalysts,” Y. Shu,* Y. Fujimoto, Y. Taniguchi, K. Miyake,* Y. Uchida, N. Nishiyama, *ACS Appl. Energy Mater.*, American Chemical Society, **5**, 11091–11097 (2022).

112) “Mg and Zn co-doped mesoporous ZSM-5 as an ideal catalyst for ethane dehydroaromatization reaction,” T. Sumi, S. Kokuryo, Y. Fujimoto, X. Li, K. Miyake,* Y. Uchida, N. Nishiyama, *Catal. Sci. Technol.*, The Royal Society of Chemistry, **12**, 7010–7017 (2022).

111) “Photo-orientation and Electron Paramagnetic Resonance Spectra of a Nitroxide and Azobenzene-Containing Hydrogen-Bonded Complex,” A. V. Bogdanov,* Y. Uchida, A. Kh. Vorobiev, *J. Phys. Chem. C*, American Chemical Society, **126**, 13332–13340 (2022).

110) “Hierarchical zeolites with high hydrothermal stability prepared via desilication of OSDA-occluded zeolites,” X. Li, J. A. Hernandez Gaitan, S. Kokuryo, T. Sumi, H. Kitamura, K. Miyake,* Y. Uchida, N. Nishiyama, *Micropor. Mesopor. Mater.*, Elsevier, **344**, 112096 (2022).

109) “LDPE cracking over mono and divalent metals doped Beta zeolite,” S. Kokuryo,* K. Tamura, K. Miyake,* Y. Uchida, A. Mizusawa, T. Kubo, and N. Nishiyama, *Catal. Sci. Technol.*, The Royal Society of Chemistry, **12**, 4138–4144 (2022). **Inside Back Cover**

108) “Mechanochemical Synthesis of Dispersible Platinum Nanosheets for Enhanced Catalysis in Microreactor,” K. Sasaki, K. Miyake, Y. Uchida,* N. Nishiyama, *ACS Appl. Nano Mater.*, American Chemical Society, **5**, 4998–5005 (2022).

107) “Molecular Clustering Behaviour in Cybotactic Nematic Phase of Spin-labelled Liquid Crystal,” Y. Uchida,* T. Akita, K. Hanada, D. Kiyohara, N. Nishiyama, *J. Mater. Chem. C*, The Royal Society of Chemistry, **10**, 6621–6627 (2022). **Inside Front Cover**

106) “Design of Zr- and Al-doped *BEA type zeolite to boost LDPE cracking,” S. Kokuryo,* K. Miyake,* Y. Uchida, S. Tanaka, M. Miyamoto, Y. Oumi, A. Mizusawa, T. Kubo, N. Nishiyama, *ACS Omega*, American Chemical Society, **7**, 12971–12977 (2022).

105) “A Novel Strategy to Enhance Acid Strength of Zeolites by Incorporating Ge into Zeolite Framework,” S. Kokuryo,* H. Al Jabri, K. Miyake,* Y. Uchida, S. Tanaka, M. Miyamoto, Y. Oumi, N. Nishiyama, *ChemistrySelect*, Wiley-VCH, **7**, e202200756 (2022).

104) “Zr-doped SAPO-34 with enhanced Lewis acidity,” S. Kokuryo,* K. Tamura, K. Miyake,* Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *New J. Chem.*, The Royal Society of Chemistry, **46**, 3838–3843 (2022).

103) “Electrochemical hydrogen evolution reaction over Co/P doped carbon derived from triethyl phosphite-deposited 2D nanosheets of Co/Al layered double hydroxides,” Y. Shu,* K. Sasaki, Y. Fujimoto, K. Miyake,* Y. Uchida, S. Tanaka, N. Nishiyama, *Int. J. Hydrog. Energy*, Elsevier, **49**, 10638–10645 (2022).

102) “Vapor-assisted crystallization of in situ glycine-modified UiO-66 with enhanced CO₂ adsorption,” Y. Fujimoto, Y. Shu, Y. Taniguchi, K. Miyake,* Y. Uchida, S. Tanaka, N. Nishiyama, *New J. Chem.*, The Royal Society of Chemistry, **46**, 1779–1784 (2022).

101) “Defect engineering to boost catalytic activity of Beta zeolite on low-density polyethylene cracking,”

S. Kokuryo*, K. Miyake*, Y. Uchida, A. Mizusawa, T. Kubo, N. Nishiyama, *Mater. Today Sustain.*, Elsevier, **17**, 100098 (2022).

100) “Precisely controlled synthesis of Co/N species contained porous carbon for oxygen reduction reaction via anion-exchanging and CO₂ activation,” Y. Shu,* Y. Fujimoto, K. Miyake,* Y. Uchida, S. Tanaka, N. Nishiyama, *New J. Chem.*, The Royal Society of Chemistry, **46**, 2038–2043 (2022). **Front Cover**

99) “Magnetically Manipulable Ionic Liquid Crystal Incorporating Neutral Radical Moiety,” Y. Uchida,* T. Sakaguchi, S. Oki, S. Shimono, J. Park, M. Sugiyama, S. Sato, E. Zaytseva, D. G. Mazhukin, R. Tamura,* *ChemPlusChem*, Wiley, **87**, e202100352 (2022). **Front Cover**

98) “Self-assembly strategy for Co/N-doped meso/microporous carbon toward superior oxygen reduction catalysts,” Y. Shu,* K. Ota, Koji Miyake,* Y. Uchida, S. Tanaka, N. Nishiyama, *Colloids Surf. A*, Elsevier, **629**, 127395 (2021).

97) “SAPO-34 Zeolite Nanocrystals Coated with ZrO₂ as Catalysts for Methanol-to-Olefin Conversion,” Y. Fujimoto, Y. Shu, K. Miyake,* Y. Uchida, N. Nishiyama, *ACS Appl. Nano Mater.*, American Chemical Society, **4**, 8321–8327 (2021).

96) “Stable dehydroaromatization of ethane over Zn ion exchanged MFI type galloaluminosilicate zeolite,” R. Inoue, K. Miyake,* Y. Hotta, X. Li, R. Yashiro, Y. Hirota, Y. Uchida, M. Miyamoto, Y. Oumi, C. Y. Kong, N. Nishiyama, *Fuel*, Elsevier, **305**, 121487 (2021).

95) “Thin ZIF-8 Nanosheets Synthesized in Hydrophilic TRAPs,” K. Sasaki, T. Okue, Y. Shu, K. Miyake, Y. Uchida,* N. Nishiyama, *Dalton Trans.*, The Royal Society of Chemistry, **50**, 10394–10399 (2021). **Outside Back Cover**

94) “Lateral Growth of Uniformly Thin Gold Nanosheets Facilitated by Two-dimensional Precursor Supply,” K. Sasaki, T. Okue, T. Nakai, Y. Uchida,* N. Nishiyama, *Langmuir*, American Chemical Society, **37**, 5872–5877 (2021). **Supplementary Cover**

93) “Single atomic Co coordinated with N in microporous carbon for oxygen reduction reaction obtained from Co/2-methylimidazole anchored to Y zeolite as a template,” Y. Zhu, K. Miyake,* Y. Shu, K. Moroto, Y. Hirota, Y. Uchida, S. Tanaka, T. Zheng, M. Katayama, Y. Inada, E. Morallón, D. Cazorla-Amorós, C. Y. Kong, N. Nishiyama, *Mater. Today Chem.*, Elsevier, **20**, 100410 (2021).

92) “Hysteretic Control of Near-infrared Transparency Using a Liquescent Radical Cation,” S. Suzuki,* D. Yamaguchi, Y. Uchida, T. Naota,* *Angew. Chem. Int. Ed.*, Wiley-VCH, **60**, 8284–8288 (2021).

91) “Controlled Release of Photoresponsive Nematic Liquid Crystalline Microcapsules,” Y. Iwai, T. Maeda, Y. Uchida,* F. Araoka, N. Nishiyama, *Adv. Photon. Res.*, Wiley-VCH, **2**, 2000079 (2021). **Inside Front Cover**

90) “Thermal Molecular Motion Can Amplify Intermolecular Magnetic Interactions,” Y. Uchida,* G. Watanabe, T. Akita, N. Nishiyama, *J. Phys. Chem. B*, American Chemical Society, **124**, 6175–6180 (2020).

89) “Shrinkage of Cholesteric Liquid Crystalline Microcapsule as Omnidirectional Cavity to Suppress Optical Loss,” Y. Iwai, R. Iijima, K. Yamamoto, T. Akita, Y. Uchida,* N. Nishiyama, *Adv. Opt. Mater.*, Wiley-VCH, **8**, 1901363 (2020).

88) “Rational design of single atomic Co in CoN_x moieties on graphene matrix as an ultra-highly efficient

active site for oxygen reduction reaction,” Y. Shu, K. Miyake, J. Quílez-Bermejo, Y. Zhu, Y. Hirota, Y. Uchida, S. Tanaka, E. Morallón, D. Cazorla-Amorós, C. Y. Kong, N. Nishiyama, *ChemNanoMat*, Wiley-VCH, **6**, 218-222 (2020).

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