CURRICULUM VITAE

Personal Information

Name:	Masataka OHTANI
Year of Birth:	1982
Place of Birth:	Kobe, Japan
Nationality:	Japanese
Present Address:	Kochi University of Technology, School of Engineering Science
	185 Miyanokuchi, Tosayamada, Kami, Kochi 782-8502, Japan
Tel:	+81-887-57-2419
E-mail:	ohtani.masataka@kochi-tech.ac.jp
Homepage:	http://www.scsci.kochi-tech.ac.jp/ohtani/
ORCID:	0000-0003-1016-1812
Researchmap:	https://researchmap.jp/ohtani
KAKEN:	20585004

Education

2010.3	Ph.D. (Engineering),
	Graduate School of Engineering, Osaka University, Japan
2007.3	M.Sc.,
	Graduate School of Engineering, Osaka University, Japan
2005.3	B.Sc.,
	Kobe City College of Technology, Japan

Professional Career

2023.08-Present	Professor,
	School of Engineering Science / School of Environmental Science and Engineering,
	Kochi University of Technology
2019.07-2023.07	Associate Professor (Principal Investigator),
	School of Engineering Science / School of Environmental Science and Engineering,
	Kochi University of Technology
2016.04-2019.06	Assistant Professor (Principal Investigator),
	School of Environmental Science and Engineering, Kochi University of Technology
2014.04-2016.03	Research Associate,
	School of Environmental Science and Engineering, Kochi University of Technology
2010.04-2014.03	Postdoctoral Researcher,
	Center for Emergent Matter Science, RIKEN

Grant

2022.04-2025.03	JSPS KAKENHI Grant-in-Aid for Scientific Research (C), Grant No. 22K04857
2019.03-2022.03	JSPS KAKENHI Grant-in-Aid for Scientific Research (C), Grant No. 19K05186
2017.04-2019.03	JSPS KAKENHI Grant-in-Aid for Young Scientists (B), Grant No. 17K14858
2013.04-2015.03	JSPS KAKENHI Grant-in-Aid for Young Scientists (B), Grant No. 25810120
2010.10-2012.03	JSPS KAKENHI Grant-in-Aid for Research Activity Start-up, Grant No. 22850020

Award

2021.11	Invention Award, Japan Institute of Invention and Innovation
2016.04	CSJ Presentation Award 2016, The Chemical Society of Japan
2016.01	International Solvothermal and Hydrothermal Association Conference (ISHA) 2016
	Best Poster Award, International Solvothermal and Hydrothermal Association
2012.04	CSJ Presentation Award 2012, The Chemical Society of Japan

Publication List

- Thermodynamic analysis of gate-opening carbon dioxide adsorption behavior of metal-organic frameworks, Shino Kannaka, Ayumi Ohmiya, Chiho Ozaki, and <u>Masataka Ohtani*</u> Chem. Commun., 2024, accepted.
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- (2) Boron-imidazolate coordination networks with 3d transition metals for enhanced CO₂ adsorption capability, Takeshi Kato, Ikuho Akiyama, Fumika Mori, Ayumu Shinohara, Yudai Ogura, Akitaka Ito, and <u>Masataka</u> <u>Ohtani*</u> *Mater. Adv.*, **2024**, *published online*. *Selected as an Inside Front Cover
- (3) Solvothermal synthesis of porous FeO_x-CeO_{2-y} composite spheres with high mixing homogeneity, Ayano Taniguchi, Yusuke Hiraguri, Reo Minakuchi, Honoka Kajimoto, Asuka Shima, <u>Masataka Ohtani</u>*, and Kazuya Kobiro, *J. Supercrit. Fluids*, **2024**, *207*, 106194.
- (4) Contribution of micropores in porous zirconia spheres to high optical transparency of dental resin composites, Shingo Mizobuchi, Masataka Ohtani, and Kazuya Kobiro, *Dent. Mater. J.* **2024**, *43*, 119–125.
- (5) Direct observation of crystal degradation behaviour in porous crystals under low-dose electron diffraction conditions, Hikaru Sakamoto, <u>Masataka Ohtani*</u> Chem. Commun., 2023, 59, 5039–5042. *Selected as a Front Cover
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- (9) One-step solvothermal synthesis of Ni nanoparticle catalysts embedded in ZrO₂ porous spheres to suppress carbon deposition in low-temperature dry reforming of methane, Meiliefiana Meiliefiana, Tsuzumi Nakayashiki, Emi Yamamoto, Kahoko Hayashi, <u>Masataka Ohtani*</u>, and Kazuya Kobiro, *Nanoscale Res. Lett.*, **2022**, *17*, 47.
- (10) Thermal crystal phase transition in zeolitic imidazolate frameworks induced by nanosizing the crystal, Takaya Kaneshige, Hikaru Sakamoto, and <u>Masataka Ohtani*</u>, *Chem. Commun.*, **2022**, *58*, 4599–4591. *Highlighted in "Chemical Communications HOT Articles 2022" *Selected as a Front Cover
- (11) Tailoring orientation of microstructure for improving thermopower factor in Mg-doped CuCrO₂ thick films, Dung Van Hoang, Anh Tuan Thanh Pham, Truong Huu Nguyen, Hoa Thi Lai, Dai Cao Truong, Thu Bao Nguyen Le, Thuy Dieu Thi Ung, <u>Masataka Ohtani</u>, Vinh Cao Tran, and Thang Bach Phan, *Appl. Phys. Lett.*, **2022**, *120*, 063902.
- (12) Unusual ligand substitution of a metal-organic framework with distorted metal-ligand coordination, Hikaru Sakamoto, Akitaka Ito, and <u>Masataka Ohtani*</u>, *CrystEngComm*, **2022**, *24*, 1690–1694. *Selected as a Back Cover
- (13) Impact of nanosizing a host matrix based on a metal-organic framework on solid-state fluorescence emission and energy transfer, Hikaru Sakamoto, Akitaka Ito, and <u>Masataka Ohtani*</u>, *Mater. Adv.*, 2022, 3, 2011–2017.
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- (24) Sintering-resistant metal catalysts supported on concave-convex surface of TiO₂ nanoparticle assemblies, Farkfun Duriyasart, Akito Irizawa, Kahoko Hayashi, <u>Masataka Ohtani*</u>, and Kazuya Kobiro, *ChemCatChem*, 2018, 10, 3392–3396. *Highlighted on the Cover Page
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- (27) A new approach to surface activation of porous nanomaterials using non-thermal helium atmospheric pressure plasma jet treatment, Farkfun Duriyasart, <u>Masataka Ohtani*</u>, Jun-Seok Oh, Akimitsu Hatta, and Kazuya Kobiro, *Chem. Commun.*, **2017**, *53*, 6704–6707. *Highlighted on the Inside Cover Page
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- (35) Insight into alcohol reduction by saccharides and their homologues in supercritical water via aldehyde-mediated radical formation, <u>Masataka Ohtani</u>, Yuki Okimoto, Yuya Oishi, Pengyu Wang, and Kazuya Kobiro, *J. Supercrit. Fluids*, **2015**, *98*, 147–152.
- (36) Ultra-simple synthetic approach to the fabrication of CeO₂–ZrO₂ mixed nanoparticles into homogeneous, domain, and core–shell structures in mesoporous spherical morphologies using supercritical alcohols, Pradeep, E. K. C., Teppei Habu, Hiroko Tooriyama, <u>Masataka Ohtani*</u>, and Kazuya Kobiro, *J. Supercrit. Fluids*, **2015**, *97*, 217–223.
- (37) Magnetically induced anisotropic orientation of graphene oxide locked by *in situ* hydrogelation, Linlin Wu[†], <u>Masataka Ohtani[†]</u>, Masaki Takata, Akinori Saeki, Shu Seki, Yasuhiro Ishida, and Takuzo Aida, *ACS Nano*, **2015**, 8, 4640–4649. [†] *These authors equally contributed to this work*.
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- (40) Linear versus dendritic molecular binders for hydrogel network formation with clay nanosheets: studies with ABA triblock copolyethers carrying guanidinium ion pendants, Shingo Tamesue, <u>Masataka Ohtani</u>, Kuniyo Yamada, Yasuhiro Ishida, Jason M. Spruell, Nathaniel A. Lynd, Craig J. Hawker, and Takuzo Aida, *J. Am. Chem. Soc.*, **2013**, *135*, 15650–15655.

- (41) Photoelectrochemical cell based on cup-shaped nanocarbon-fullerene composite nanocluster film: enhancement of photocurrent generation by cup-shaped nanocarbons as an electron transporter, <u>Masataka Ohtani</u> and Shunichi Fukuzumi, *Fullerenes, Nanotubes, Carbon Nanostruct.*, **2010**, *18*, 251–260.
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- (43) Supramolecular donor-acceptor assemblies composed of carbon nanodiamond and porphyrin for photoinduced electron transfer and photocurrent generation, <u>Masataka Ohtani</u>, Prashant V. Kamat, and Shunichi Fukuzumi, *J. Mater. Chem.*, **2010**, *20*, 582–587.
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- (45) Synthesis, characterization, redox properties, and photodynamics of donor-acceptor nanohybrids composed of size-controlled cup-shaped nanocarbons and porphyrins, <u>Masataka Ohtani</u>, Kenji Saito, and Shunichi Fukuzumi, *Chem.–Eur J.*, **2009**, *15*, 9160–9168.
- (46) Nanostructural control of cup-stacked carbon nanotubes with 1-benzyl-1,4-dihydronicotinamide dimer via photoinduced electron transfer, Kenji Saito, <u>Masataka Ohtani</u>, and Shunichi Fukuzumi, *Chem. Commun.*, 2007, 55–57. *Highlighted on the Inside Cover Page
- (47) Electron-transfer reduction of cup-stacked carbon nanotubes affording cup-shaped carbons with controlled diameter and size, Kenji Saito, <u>Masataka Ohtani</u>, and Shunichi Fukuzumi, *J. Am. Chem. Soc.*, **2006**, *128*, 14216– 14217.

Research Interest

Porous Nanomaterials, Metal-Organic Frameworks (MOFs), Coordination Polymers (CPs), Covalent Organic Frameworks (COFs), Catalysts, Gas Adsorption/Separation Materials, Stimuli-Responsive Materials, Phase Transition, Thermodynamic Analysis, Electron Microscopy (TEM/STEM, SEM, EDX, EELS), Electron-Diffraction Crystallography (microED)