Jieun Jung

Lecturer

Graduate School of Science, Nagoya University, Chikusa Nagoya 464-8602, Japan

E-mail: jung.jieun.z7@f.mail.nagoya-u.ac.jp

Phone & Fax: +81-(0)52-789-5904

Education:

Bachelor: Chungnam National University, 2010

Master: Osaka University, 2012

PhD: Osaka University, 2015

Field of Research:

Photocatalysis, Photochemistry, Artificial Photosynthesis, Electron-Transfer Chemistry, etc.

Appointments:

Professor for Special Appointment, **2015–2017**

Department of Chemistry and Nano Science, Ewha Womans University

(Prof. W. Nam and Prof. S. Fukuzumi's Lab)

Assistant Professor, **2017–2022**

Department of Chemistry, Graduate School of Science, Nagoya University

(Prof. S. Saito's Lab)

Lecturer, **2022–present**

Department of Chemistry, Graduate School of Science, Nagoya University

(Prof. S. Saito's Lab)

Publications:

1. No matter what energy input: tetradentate PNNP-ligated iridium complexes for CO_2 reduction. Jieun Jung* and Susumu Saito* *Chem.–Eur. J*. just accepted (2025).
2. Selective electroreduction of CO_2 to formate by a heterogenized Ir complex using H_2O as an electron/hydrogen source
   Jieun Jung,* Keun Woo Lee, Naonari Sakamoto, Selvam Kaliyamoorthy, Taku Wakabayashi, Kenji Kamada, Keita Sekizawa, Shunsuke Sato, Tomiko M. Suzuki, Takeshi Morikawa, and Susumu Saito* *EES. Catal*. ASAP (**2024**). (DOI: 10.1039/D4EY00261J)
3. Ferrocenyl PNNP Ligands-Controlled Chromium Complex-Catalyzed Photocatalytic Reduction of CO_2 to Formic Acid
   Taku Wakabayashi, Yohei Kametani, Eimi Tanahashi, Yoshihito Shiota, Kazunari Yoshizawa, Jieun Jung,* and Susumu Saito* *J. Am. Chem. Soc.*, *146*, 25963–25975 (**2024**). (DOI: 10.1021/jacs.4c03683)
4. Photocatalytic CO_2 reduction using an osmium complex as a panchromatic self-photosensitized catalyst: Utilization of blue, green, and red light
   Kenji Kamada, Jieun Jung,* Chihiro Yamada, Taku Wakabayashi, Keita Sekizawa, Shunsuke Sato, Takeshi Morikawa, Shunichi Fukuzumi, and Susumu Saito* *Angew. Chem. Int. Ed*. *63*, e202403886 (**2024**). (DOI: 10.1002/anie.202403886)
5. Importance of steric bulkiness of iridium photocatalysts with PNNP tetradentate ligands for CO_2 reduction
   Kenji Kamada, Jieun Jung,* Yohei Kametani, Taku Wakabayashi, Yoshihito Shiota, Kazunari Yoshizawa, Seong Hee Bae, Manami Muraki, Masayuki Naruto, Keita Sekizawa, Shunsuke Sato, Takeshi Morikawa, and Susumu Saito* *Chem. Commun.*, 58, 9218–9221 (**2022**). (DOI: 10.1039/d2cc01701f)

6. Photocatalytic CO_2 reduction using an iron–bipyridyl complex supported by two phosphines for improving catalyst durability
   Taku Wakabayashi, Kenji Kamada, Keita Sekizawa, Shunsuke Sato, Takeshi Morikawa, Jieun Jung,* and Susumu Saito* *Organometallics*, *41*, 1865−1871 (**2022**). (DOI: 10.1021/acs.organomet.2c00171)
7. A highly durable, self-photosensitized mononuclear ruthenium catalyst for CO_2 reduction
   Kenji Kamada, Hiroko Okuwa, Taku Wakabayashi, Keita Sekizawa, Shunsuke Sato, Takeshi Morikawa, Jieun Jung,* and Susumu Saito* *Synlett*, *33*, 1137–1141 (**2022**). (DOI: 10.1055/a-1709-0280)
8. Recent advances in light-driven carbon–carbon bond formation via carbon dioxide activation
   Jieun Jung* and Susumu Saito* *Synthesis*, *53*, 3263–3278 (**2021**). (DOI: 10.1055/a-1577-5947)
9. Photocatalytic CO_2 reduction using a robust multifunctional iridium complex toward the selective formation of formic acid
   Kenji Kamada, Jieun Jung,* Taku Wakabayashi, Keita Sekizawa, Shunsuke Sato, Takeshi Morikawa, Shunichi Fukuzumi, and Susumu Saito* *J. Am. Chem. Soc. 142*, 10261–10266 (**2020**). (DOI: 10.1021/jacs.0c03097)
10. PNNP 四座配位子をもつ精密金属錯体触媒を用いる再生可能炭素資源の還元法の開発
    Shota Yoshioka, Jieun Jung, and Susumu Saito* *J. Syn. Org. Chem. Jpn. 78*, 856−866 (**2020**). (DOI: 10.5059/yukigoseikyokaishi.78.856)
11. Photocatalytic hydrogen evolution using a Ru(II)-bound heteroaromatic ligand as a reactive site
    Takuya Sawaki, Tomoya Ishizuka, Nanase Namura, Dachao Hong, Mayuko Miyanishi, Yoshihito Shiota, Hiroaki Kotani, Kazunari Yoshizawa,* Jieun

Jung, Shunichi Fukuzumi, and Takahiko Kojima* *Dalton Trans. 49*, 17230–17242 (**2020**). (DOI: 10.1039/d0dt03546g)

12. Spatiotemporal control of amide radicals during photocatalysis.
    Shogo Mori, Takahiro Aoki, Kaliyamoorthy Selvam, Shunichi Fukuzumi, Jieun Jung, and Susumu Saito* *ChemRxiv*. Preprint, **2020**, https://doi.org/10.26434/chemrxiv.12040146.v1
13. Photocatalytic oxygenation reactions with a cobalt porphyrin complex using water as an oxygen source and dioxygen as an oxidant
    Young Hyun Hong, Ji Won Han, Jieun Jung, Tatsuo Nakagawa, Yong-Min Lee, Wonwoo Nam*, and Shunichi Fukuzumi* *J. Am. Chem. Soc*. *141*, 9155−9159 (**2019**). (DOI: 10.1021/jacs.9b02864)
14. Photodriven oxidation of water by plastoquinone analogs with a nonheme iron catalyst.
    Young Hyun Hong, Jieun Jung, Tatsuo Nakagawa, Namita Sharma, Yong-Min Lee, Wonwoo Nam*, and Shunichi Fukuzumi* *J. Am. Chem. Soc*. *141*, 6748−6754 (**2019**). (DOI: 10.1021/jacs.9b02517)
15. Long-lived photoexcited state of a Mn(IV)-oxo complex binding scandium ions that is capable of hydroxylating benzene.
    Namita Sharma, Jieun Jung, Kei Ohkubo, Yong-Min Lee, Mohamed E. El-Khouly, Wonwoo Nam*, and Shunichi Fukuzumi* *J. Am. Chem. Soc. 140*, 8405–8409 (**2018**). (DOI: 10.1021/jacs.8b04904)
16. Thermal and photocatalytic oxidation of organic substrates by dioxygen with water as an electron source.
    Shunichi Fukuzumi*, Yong-Min Lee*, Jieun Jung, and Wonwoo Nam* *Green Chem*. *20*, 948–963 (**2018**). (DOI: 10.1039/c7gc03387g)
17. Photocatalytic oxidation of benzene to phenol using dioxygen as an oxygen source and water as an electron source in the presence of a cobalt catalyst.

Jieun Jung, Ji Won Han, Yong-Min Lee, Wonwoo Nam*, and Shunichi Fukuzumi* *Chem. Sci*. *8*, 7119–7125 (**2017**). (DOI: 10.1039/c7sc02495a)

18. Bicyclic Baird-type aromaticity.
    Won-Young Cha, Taeyeon Kim, Arindam Ghosh, Zhan Zhang, Xian-Sheng Ke, Rashid Ali, Vincent M. Lynch, Jieun Jung, Woojae Kim, Sangsu Lee, Shunichi Fukuzumi*, Jung Su Park*, Jonathan L. Sessler*, Tavarekere K. Chandrashekar*, and Dongho Kim* *Nature Chem. 9*, 1243-1248 (**2017**). (DOI: 10.1038/NCHEM.2834)
19. Multi-electron oxidation of anthracene derivatives by nonheme manganese(IV)–oxo complexes.
    Namita Sharma, Jieun Jung, Yong-Min Lee, Mi Sook Seo, Wonwoo Nam*, and Shunichi Fukuzumi* *Chem. Eur. J. 23*, 7125–7131 (**2017**). (DOI : 10.1002/chem.201700666)
20. Effects of Lewis acids on photoredox catalysis.
    Shunichi Fukuzumi*, Jieun Jung, Yong-Min Lee, and Wonwoo Nam* *Asian J. Org. Chem. 6*, 397–409 (**2017**). (DOI: 10.1002/ajoc.201600576)
21. A chromium(III)–superoxo complex as a three-electron oxidant with a large tunneling effect in multi-electron oxidation of NADH analogues.
    Tarali Devi, Yong-Min Lee, Jieun Jung, Muniyandi Sankaralingam, Wonwoo Nam*, and Shunichi Fukuzumi* *Angew. Chem. Int. Ed. 56*, 3510–3515 (**2017**). (DOI: 10.1002/anie.201611709)
22. Switchover of the mechanism between electron transfer and hydrogen-atom transfer for a protonated manganese(IV)–oxo complex by changing only the reaction temperature.
    Jieun Jung, Surin Kim, Yong-Min Lee, Wonwoo Nam*, and Shunichi Fukuzumi* *Angew. Chem. Int. Ed. 55*, 7450–7454 (**2016**). (DOI: 10.1002/anie.201602460)

23. Photocatalytic oxygenation of substrates by dioxygen with protonated manganese(III) corrolazine.

    Jieun Jung, Heather M. Neu, Pannee Leeladee, Maxime A. Siegler, Kei Ohkubo, David P. Goldberg*, and Shunichi Fukuzumi* *Inorg. Chem. 55*, 3218−3228 (**2016**). (DOI: 10.1021/acs.inorgchem.5b02019)

24. Homogeneous and heterogeneous photocatalytic water oxidation by persulfate.

    Shunichi Fukuzumi*, Jieun Jung, Yusuke Yamada*, and Takahiko Kojima*, and Wonwoo Nam* *Chem. Asian J. 11*, 1138–1150 (**2016**). (DOI: 10.1002/asia.201501329)

25. Enhanced electron transfer reactivity of a nonheme iron(IV)–imido complex as compared to the iron(IV)-oxo analogue.

    Anil Kumar Vardhaman, Yong-Min Lee, Jieun Jung, Kei Ohkubo, Wonwoo Nam*, and Shunichi Fukuzumi* *Angew. Chem. Int. Ed. 55*, 3709–3713 (**2016**). (DOI: 10.1002/anie.201600287)

26. Light-driven, proton-controlled, catalytic aerobic C−H oxidation mediated by a Mn(III) porphyrinoid complex.

    Heather M. Neu, Jieun Jung, Regina A. Baglia, Maxime A. Siegler, Kei Ohkubo, Shunichi Fukuzumi*, and David P. Goldberg* *J. Am. Chem. Soc. 137*, 4614−4617 (**2015**). (DOI: 10.1021/jacs.5b00816)

27. Catalytic two-electron reduction of dioxygen by ferrocene derivatives with manganese(V) corroles.

    Jieun Jung, Shuo Liu, Kei Ohkubo, Mahdi M. Abu-Omar*, and Shunichi Fukuzumi* *Inorg. Chem. 54*, 4285−4291 (**2015**). (DOI: 10.1021/ic503012s)

28. Activationless electron self-exchange of high-valent oxo and imido complexes of chromium corroles.

Shuo Liu, Jieun Jung, Kei Ohkubo, Scott D. Hicks, Curt J. Bougher, Mahdi M. Abu-Omar*, and Shunichi Fukuzumi* *Inorg. Chem*. *54*, 9223−9228 (**2015**). (DOI: 10.1021/acs.inorgchem.5b01777)

29. Photocatalytic oxygenation of 10-methyl-9,10-dihydroacridine by O_2 with manganese porphyrins.
    Jieun Jung, Kei Ohkubo, David P. Goldberg*, Shunichi Fukuzumi* *J. Phys. Chem. A 118*, 6223−6229 (**2014**). (DOI: dx.doi.org/10.1021/jp505860f)
30. Photochemical oxidation of a manganese(III) complex with oxygen and toluene derivatives to form a manganese(V)–oxo complex.
    Jieun Jung, Kei Ohkubo, Katharine A. Prokop-Prigge, Heather M. Neu, David P. Goldberg*, and Shunichi Fukuzumi* *Inorg. Chem. 52*, 13594−13604 (**2013**). (DOI: dx.doi.org/10.1021/ic402121j)
31. Production of hydrogen peroxide as a sustainable solar fuel from water and dioxygen.
    Satoshi Kato, Jieun Jung, Tomoyoshi Suenobu, and Shunichi Fukuzumi* *Energy Environ. Sci*. *6*, 3756–3764 (**2013**). (DOI: 10.1039/c3ee42815j)
32. Water-soluble mononuclear cobalt complexes with organic ligands acting as precatalysts for efficient photocatalytic water oxidation.
    Dachao Hong, Jieun Jung, Jiyun Park, Yusuke Yamada, Tomoyoshi Suenobu, Yong-Min Lee, Wonwoo Nam*, and Shunichi Fukuzumi* *Energy Environ. Sci*. *5*, 7606–7616 (**2012**). (DOI: 10.1039/c2ee21185h)