

Masaaki Kitano



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Education:

PhD (2003/4~2006/3) Department of Applied Chemistry, Osaka Prefecture University, Japan

B.S. (1997/4~2001/3) Department of Applied Chemistry, Osaka Prefecture University, Japan

Experience:

Postdoc (2006/4~2007/3) Department of Applied Chemistry, Osaka Prefecture University, Japan

Postdoc (2007/4~2009/3) Kanagawa Academy of Science and Technology, Japan

Specially Appointed Assistant Professor (2009/4~2012/12) Materials and Structures Laboratory,
Tokyo Institute of Technology, Japan

Associate Professor (2013/1~2022/12) Materials Research Center for Element Strategy, Tokyo
Institute of Technology, Japan

Selective Honors & Awards:

1. 2022 APACS Awards Outstanding Researcher Award (Asia-Pacific Association of Catalysis Societies) (2022)
2. The 18th Green and Sustainable Chemistry Awards (2019)
3. The Young Scientists' Prize in the 2017 Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (2017)
4. Catalysis Society of Japan Award for Young Researchers (2016)

Research Areas:

Catalysis and Material Science

Selective Publications:

1. "Anion vacancies activate N₂ to ammonia on Ba–Si orthosilicate oxynitride-hydride" *Nat. Chem.* 17, 679-687 (2025).
2. "Vacancy-enabled N₂ activation for ammonia synthesis on an Ni-loaded catalyst", *Nature* 583, 391-395 (2020).
3. "Low-Temperature Synthesis of Perovskite Oxynitride-Hydrides as Ammonia Synthesis Catalysts", *J. Am. Chem. Soc.* 141, 20344–20353 (2019).
4. "Electride support boosts nitrogen dissociation over ruthenium catalyst and shifts the bottleneck in ammonia synthesis", *Nat. Commun.* 6, 6731 (2015).
5. "Ammonia synthesis using a stable electride as an electron donor and reversible hydrogen store",

Nat. Chem., 4, 934-940 (2012).