

Xile Hu – Curriculum Vitae

Date of Birth: August 7, 1978
Address: École Polytechnique Fédérale de Lausanne
Institute of Chemical Sciences and Engineering
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RESEARCH TOPICS

Our main research goal is to develop catalysts composed of earth-abundant elements for chemical transformations of relevance to synthesis, energy, and sustainability.

Current research topics include:

- (i) Base metal catalysis for organic synthesis
- (ii) Artificial enzymes and biocatalysis
- (iii) Inexpensive and scalable inorganic catalysts for electrochemical energy conversion – water splitting, CO₂ reduction, and fuel cell reactions
- (iv) Development of anion-exchange-membrane fuel cells and electrolyzers

EDUCATION

Postdoc., California Institute of Technology, USA, February **2005** – June **2007**.

Advisor: Prof. Jonas C. Peters

Ph.D. in Chemistry, University of California, San Diego, USA, December **2004**.

Advisor: Prof. Karsten Meyer

- **Doctoral thesis title:** Metal complexes of tripodal N-heterocyclic carbene ligands: synthesis, structure, bonding, and reactivity.

M.S. in Chemistry, University of California, San Diego, USA, June **2002**.

Advisor: Prof. Karsten Meyer

B.S. in Chemistry, Peking University, Beijing, P. R. China, June **2000**.

Advisor: Prof. Jianhua Lin

AWARDS AND HONORS (independent career)

2022	Swiss Green and Sustainable Chemistry Award
2020	Member, Academia Europaea
2020	International Catalysis Award, International Association of Catalysis Societies
2019	Fellow, European Academy of Sciences
2019	Royal Society of Chemistry Homogeneous Catalysis Award
2018	Resonate Award for Sustainability Science, Caltech
2017	National Latsis Prize, Swiss National Science Foundation and the Latsis Foundation (now called Swiss Science Prize Latsis)
2017-21	Highly Cited Researcher (Web of Science, Clarivate Analytics)
2017	Tajima Prize, International Society of Electrochemistry
2017	<i>Organic Letters</i> Outstanding Publication of the Year Lectureship Award, ACS
2016,18	European Research Council (ERC) Proof-of-Concept Grant
2016	Bau Family Award in Inorganic Chemistry
2015	European Research Council (ERC) Consolidator Grant
2015	Outstanding Reviewer Award, Wiley-VCH, ChemPubSoc Europe, ACES
2015	Young Researcher Award, European Federation of Catalysis Societies
2014	Fellow, Royal Society of Chemistry (UK)
2014	European Medal for Bio-Inorganic Chemistry (Eurobic Medal)
2014	<i>Organometallics</i> Young Investigator Fellowship, American Chemical Society

2014	Rising Star, International Conference on Coordination Chemistry
2013	<i>Chemical Society Reviews</i> Emerging Investigator Lectureship, RSC
2012	Member, Young Academy of Europe
2012	Extraordinary Young Scientist, World Economic Forum
2012	EuCheMS Organic Division Young Investigator
2011	Werner Prize, Swiss Chemical Society
2011	Thieme Chemistry Journal Award
2010	European Research Council (ERC) Starting Grant
2010	Finalist, European Young Chemist Award, EuCheMS Congress
2010	JSP Fellowship, Bürgenstock Conference

ACADEMIC POSITIONS

Full Professor of Chemistry, Jun. **2016** –, École Polytechnique Fédérale de Lausanne, Switzerland.

- **Areas of interest:** Organometallic chemistry, synthetic methodology, homogeneous catalysis; Artificial enzymes, biocatalysis; Energy, electrocatalysis, water splitting, CO₂ and CO reduction, fuel cells, inorganic materials.

Associate Professor of Chemistry (with tenure), Jan. **2013** – May **2016**, École Polytechnique Fédérale de Lausanne, Switzerland.

Tenure-Track Assistant Professor of Chemistry, Jul. **2007** – Dec. **2012**, École Polytechnique Fédérale de Lausanne, Switzerland.

EDUCATIONAL ACTIVITY

Coordination chemistry (Bachelor level)

Bioinorganic chemistry (Bachelor level)

Catalysis for energy storage (Master level)

Catalyst design for synthesis (Master level)

Frontier in chemical synthesis – towards sustainable chemistry (Ph.D. level)

Frontier in organic synthesis – synthesis of carbo- and hetero-cycles (Ph.D. level)

Frontier in organic synthesis – stereochemistry (Ph.D. level)

INVITED PROFESSORSHIP

2019, State Key Laboratory of Metal Matrix Composites, Shanghai Jiaotong University

2016, University of Paris Diderot

2016, GIAN Indian Institute of Technology Kanpur

PROFESSIONAL ACTIVITY

Editorial Advisory Board, *Chemical Communications* (RSC), 2012 – 2020

Editorial Board (2013-2016), Editorial Advisory Board (2016 -), *Inorganic Chemistry Frontiers* (RSC)

International Advisory Board, *Chemistry, An Asian Journal* (Wiley), 2013 –

Editorial Advisory Board, *ACS Catalysis*, 2014 – 2018

Advisory Board, *Chem²*, 2017 –

Management Committee, European Cooperation (COST) Action: CM 1003; CM1205

Scientific Commission for Chemistry, Swiss Occidental Universities (CUSO), 2008 – 2011

Ad-Hoc referee for scientific journals, funding agencies, international science prizes, and universities

Organizer or member of organizing committee for: *CUSO Summer School 2009 - chemistry for a sustainable world*; *Fall meeting of the Swiss Chemical Society 2013*; *Annual meeting of the international society of electrochemistry 2014*; *Vice Chair, Gordon Research Conference Renewable Energies, Solar Fuels, 2018*; *International Conference of Biological Inorganic Chemistry, 2019*; *Chair, Gordon Research Conference Renewable Energies, Solar Fuels, 2020 (2022)*

Session Chair or Discussion leader for: *European biological inorganic chemistry conference 2008*; *Fall meeting of the Swiss Chemical Society 2011*; *ACS Spring meeting 2012*; *Gordon research seminar in solar fuels 2012*; *MRS Spring meeting 2014*; *European congress of catalysis 2015*; *Gordon research conference in solar fuels 2016*.

INVITED TALKS AND DEPARTMENTAL SEMINARS**(i) Plenary, keynote, and named lectures**

21. HK PolyU 85th Anniversary Workshop Electrochemical Energy Storage and Conversion Towards Carbon Neutrality, **Hong Kong**, online, July 2022. Keynote Lecture
20. Henry Royce Institute Conference 2021, **UK**, online, March 2021. Keynote Lecture
19. International Congress of Catalysis, San Diego, **USA**, June 2020. Keynote lecture
18. French National Symposium in Solar Fuels, Gif-sur-Yvette, **France**, May 2019. Plenary lecture
17. International Conference on Hydrogenases, Lisbon, **Portugal**, April 2019. Keynote lecture
16. Resnick Young Investigator Symposium, Caltech, Pasadena, **USA**, September 2018. Keynote lecture
15. 69th Annual Meeting of International Society of Electrochemistry, Bologna, **Italy**, September 2018. Award lecture
14. Winter School, Challenges and Opportunities in Energy Research, Crans-Montana, **Switzerland**, March 2018. Plenary Lecture.
13. BASF Research Seminar, **Germany**, September 2017. Keynote Lectures (2).
12. International Symposia for Chinese Organic and Inorganic Chemists, **Singapore**, December 2016. Plenary Lecture
11. 5th International Symposium on Solar Fuels and Solar Cells, Dalian, **China**, October 2016. Keynote Lecture
10. 11th Congress of Catalysis Applied to Fine Chemicals, Lyon, **France**, September 2016. Plenary Lecture
09. Dutch National Chemistry Conference (Chains 2015), Veldhoven, **Netherlands**, December 2015. Keynote Lecture
08. 12th European Congress on Catalysis, Kazan, **Russia**, August 2015. Keynote Lecture
07. 12th European Biological Inorganic Conference, Zurich, **Switzerland**, August 2014. Plenary Lecture
06. EuCheMs Symposium in Organic Free Radicals, Prague, **Czech**, June 2014. Royal Society of Chemistry lecture.
05. Christian Doppler Lecture 2014, Cambridge University, **UK**, March 2014.
04. 6th International Symposium on Molecular Aspects of Catalysis by Sulfides, Satillieu, **France**, May 2013. Keynote Lecture
03. 2012 Congress of Coordination Chemistry, Organometallic Chemistry, and Catalysis (GECOM CONCOORD), Métabief, **France**, June 2012. Plenary Lecture
02. The 2011 Swiss Chemical Society Fall Meeting, Lausanne, **Switzerland**, September 2011. Plenary Lecture
01. University of Zürich, Institute of Inorganic Chemistry, Zürich, **Switzerland**, November 2009. Student-Elected Lecture

(ii) Invited lectures

107. Syngenta, Stein, **Switzerland**, June 2012. “Streamlined synthesis of C(sp³)-rich molecules via base-metal-catalyzed cross-coupling and hydrocarbonation reactions”
106. University of Lyon, Lyon, **France**, May 2012. “Streamlined synthesis of C(sp³)-rich molecules via base-metal-catalyzed cross-coupling and hydrocarbonation reactions”
105. University of St-Andrews, Scotland, **UK**, March 2012. Online. “Streamlined synthesis of C(sp³)-rich molecules via base-metal-catalyzed cross-coupling and hydrocarbonation reactions”
104. International Conference of Biological Inorganic Chemistry, Interlaken, **Switzerland**, August 2019. “Mn-hydrogenase”
103. Gordon Research Conference in Organometallic Chemistry, Newport, **USA**, July 2018. “Cooperative Catalysis by Nickel Pincer Complexes”

102. SCS Seminar, Catalysis Across Scales, Interlaken, Switzerland, June **2018**. “Nickel and iron-containing oxides as oxygen evolution catalysts”
101. GDCh Lecture, Bayer Healthcare and Wuppertal, Wuppertal, Germany, February **2018**. “Base Metal Catalysis”
100. University of Vienna, Vienna, Austria, February **2018**. “Base Metal Catalysis for Radical Alkylation: From Cross Coupling to Functionalization of Alkenes and Alkynes”
99. 2nd International Solar Fuels Conference, San Diego, **USA**, July 2017. “Nickel Iron Oxides as Oxygen Evolution Catalysts”
98. The Scripps Research Institute, La Jolla, **USA**, July 2017. “Base Metal Catalysis for Radical Alkylation: From Cross Coupling to Functionalization of Alkenes and Alkynes”
97. University of Zurich, Zurich, **Switzerland**, May 2017. “Earth-abundant catalytic materials for the water splitting reaction”
96. COST Carisma Annual Meeting, Lisbon, **Portugal**, March 2017. “Nickel pincer complexes as hydrosilylation catalysts and enzyme mimics”
95. Leiden University, Leiden, **Netherlands**, March 2017. “Earth-abundant catalytic materials for the water splitting reaction”
94. SwissPec Symposium, Lausanne, **Switzerland**, November 2016. “Earth-abundant catalytic materials for the water splitting reaction”
93. EPFL Vallais Campus, Sion, **Switzerland**, October 2016. “Earth-abundant catalytic materials for the water splitting reaction”
92. Peking University, Beijing, **China**, October 2016. “Earth-abundant catalytic materials for the water splitting reaction”
91. Dalian University of Technology, Dalian, **China**, October 2016. “Transition metal oxides for the oxygen evolution reaction”
90. University of Paris Diderot, Paris, **France**, September 2016. “Understanding and improving transition metal oxides for the oxygen evolution reaction”
89. University of Paris Diderot, Paris, **France**, September 2016. “Development of Earth-abundant catalytic materials for hydrogen evolution”
88. Max Planck Institute – EPFL Workshop “Bio-inspired nanostystems for energy conversion”, Berlin, **Germany**, July 2016.
87. India Institute of Technology, Mumbai, **India**, March 2016. “Base Metal Catalysis for Cross-Coupling and Addition Reactions”
86. Indian Institutes of Science Education and Research, Pune, **India**, March 2016. “Base Metal Catalysis for Cross-Coupling and Addition Reactions”
85. The Indian Association for the Cultivation of Science, Kolkata, **India**, March 2016. “Biomimetic chemistry of [Fe]-hydrogenase”
84. India Institute of Technology, Kanpur, **India**, March 2016. “Biomimetic chemistry of [Fe]-hydrogenase”
83. University of Girona, Girona, **Spain**, November 2015. “Base Metal Catalysis for Cross-Coupling and Addition Reactions”
82. Technical University of Berlin, Unicat, Berlin, **Germany**, April 2015. “Inorganic water splitting catalysts: from soft chemical synthesis to integrated photoelectrochemical devices”
81. Nankai University, Tianjin, **China**, April 2015. “Biomimetic chemistry of [Fe]-hydrogenase: from synthetic mimics to modified enzymes”
80. International Iberian Nanotechnology Laboratory, Braga, **Portugal**, March 2015. “Abundant and inexpensive inorganic catalysts for water splitting”
79. University of Paul Sabatier, Toulouse, **France**, March 2015. “Base metal catalysis for alkylation: scope and mechanism”.

78. Gordon Research Conference Metals in Biology, Ventura, **USA**, January 2015. "Biomimetic chemistry of [Fe]-hydrogenase: from synthetic mimics to modified enzymes"
77. Beijing University of Chemical Technology, Beijing, **China**, January 2015. "Abundant and inexpensive inorganic catalysts for water splitting"
76. RSC Faraday Discussion: Next Generation Materials for Energy Chemistry, Xiamen, **China**, October 2014. "Enhanced oxygen evolution activity by NiO_x and Ni(OH)₂ nanoparticles"
75. Summer School: reactivity of nanoparticles for more efficient and sustainable energy production, Kobaek Strand, **Denmark**, August 2014. "Electrocatalysts for solar fuels: integration at the photoelectrochemical interface"
74. American Chemical Society Fall Meeting, San Francisco, **U.S.A.**, August 2014. "Nickel and iron pincer complexes as catalysts and intermediates in cross coupling reactions"
73. 41st International Conference on Coordination Chemistry, **Singapore**, July 2014. "Nickel and iron pincer complexes as catalysts and intermediates in cross coupling reactions"
72. Fusion Conference in Small Molecule Activation, Chicago, **U.S.A.**, July 2014. "Natural and unnatural ways of hydrogen activation".
71. International Workshop on Solar Energy Materials, Vipava, **Slovenia**, June 2014. "Earth-abundant inorganic catalysts for electrochemical and photoelectrochemical water splitting"
70. Materials Research Society Spring Meeting 2014, San Francisco, **U.S.A.**, April 2014. "Abundant and inexpensive inorganic catalysts for energy storage".
69. CaRLa Winter School, University of Heidelberg/BASF, Heidelberg, **Germany**, February 2014. "Base metal catalysis for alkylation: scope and mechanism".
68. Syngenta Workshop on Cost-efficient Metal Catalysis, Stein, **Switzerland**, February 2014. "Base Metal Catalysis for Cross Coupling of Alkyl Halides, Direct C-H Alkylation, and Perfluoroalkylation of Olefins and Alkynes".
67. Swiss Snow Symposium, Saas fee, **Switzerland**, January 2014. "Base metal catalysis for synthesis and energy storage".
66. Gordon Research Conferences - Renewable Energies: Solar Fuels, Ventura, **U.S.A.**, January 2014. "Integrating Earth-Abundant Catalysts for Photoelectrochemical Solar Fuel Generation".
65. Ecole Polytechnique, Palaiseau, **France**, December 2013.
64. Institut de Chimie des Substances Naturelles (ICSN), CNRS, Gif-sur-Yvette, **France**, December 2013.
Title for talk No. 64-65: "Alkyl electrophiles as the reaction partners in cross coupling and C-H functionalization reactions".
63. University of Münster, Münster, **Germany**, November 2013. "Base metal catalysis for cross coupling of alkyl electrophiles and direct C-H alkylation"
62. University of Stuttgart/Max Plank Institute of Solid State Research, Stuttgart, **Germany**, October 2013. "Amorphous molybdenum sulfides and related inorganic materials as catalysts for hydrogen evolution".
61. Wuhan Symposium on Homogeneous Catalysis, Wuhan, **China**, August 2013.
60. Chinese University of Hongkong, Hongkong, **China**, August 2013.
59. Hongkong University of Science and Technology, Hongkong, **China**, August 2013.
58. University of Hongkong, Hongkong, **China**, August 2013.
Title for talk No. 58-62: "Cross coupling of alkyl electrophiles and direct C-H alkylation using base metal catalysis".
57. 15th Asian Chemical Congress, **Singapore**, August 2013. "Cross coupling of alkyl halides and direct C-H alkylation catalyzed by a nickel pincer complex".
56. Hungarian Academy of Sciences, Institute of Organic Chemistry, Budapest, **Hungary**, July 2013. "Cross coupling of alkyl electrophiles and direct C-H alkylation using base metal catalysis".
55. Firmenich, Geneva, **Switzerland**, May 2013. "Base metal catalysis for cross coupling, C-H functionalization, and beyond".

54. Lower Saxony Catalysis Symposium 2012, Goettingen, **Germany**, October 2012. "Cross coupling of alkyl electrophiles and direct C-H alkylation using base metal catalysis".
53. Danish Technical University, Lyngby, **Denmark**, September 2012
52. Workshop on Materials Science and Materials Chemistry for Energy, Peking University, Beijing, **China**, September 2012.
Title for talk No. 52-53: "Amorphous molybdenum sulfide and related materials as hydrogen evolution catalysts".
51. Nankai University, Tianjian, **China**, September 2012. "Cross coupling of alkyl electrophiles and direct C-H alkylation using base metal catalysis".
50. World Economy Forum, Summer Davos, Tianjian, **China**, September 2012. "Creating renewable fuels from the Sun".
49. Beijing Normal University, Beijing, **China**, September 2012.
48. EuCheMs Organic Division Young Investigator Workshop, Vienna, **Austria**, August 2012.
Title for talk No. 48-49: "Cross coupling of alkyl electrophiles and direct C-H alkylation using base metal catalysis".
47. Peking University, Beijing, **China**, July 2012. "Cross coupling of alkyl electrophiles and direct C-H alkylation using nickel catalysis".
46. 7th International Conference on Porphyrins and Phthalocyanines, Jeju Island, **Korea**, July 2012. "Bio-mimetic chemistry of [Fe]-hydrogenase".
45. Fudan University, Shanghai, **China**, June 2012.
44. Shanghai Institute of Organic Chemistry, Shanghai, **China**, June 2012.
43. University of Pierre & Marie Curie Paris 6, Paris, **France**, June 2012.
Title for talk No. 43-45: "Cross coupling of alkyl electrophiles and direct C-H alkylation using base metal catalysis"
42. The 2012 American Chemical Society Spring Meeting, San Diego, C.A. **U.S.A.**, March 2012. "Ni-catalyzed cross coupling of alkyl halides and direct C-H alkylation"
41. Institute of Chemical Research of Catalonia, Tarragona, **Spain**, January 2012.
40. University of Durham, Durham, **U.K.**, January 2012.
39. ETH Zurich, Zurich, **Switzerland**, January 2012.
Title for talk No. 39-41: "Catalysts Made of Earth Abundant Elements for Making C—C and H—H Bonds"
38. Bayer Science and Innovation Dialogue, Leverkusen, **Germany**, October 2011. "Ni-catalyzed cross coupling of non-activated alkyl halides and direct C-H alkylation"
37. University of Minnesota, Twin Cities, MN, **U.S.A.**, September 2011.
36. University of Wisconsin Madison, Madison, WI, **U.S.A.**, September 2011.
35. Columbia University, New York, NY, **U.S.A.**, September 2011.
Title for talk No. 35-37: "Catalysts Made of Earth Abundant Elements for Making C—C and H—H Bonds"
34. 7th Sino-US Chemistry Professor Conference, Guiyang, **China**, June 2011. "Ni-catalyzed cross coupling of non-activated alkyl halides"
33. 5th Conference on Transition Metal Chalcogenide and Halide Nanostructures (TMCN 2011), Lausanne, **Switzerland**, June 2011. "Amorphous Molybdenum Sulfide as an Efficient Catalyst for Hydrogen Evolution in Water"
32. Shanghai Jiaotong University, Department of Chemistry, Shanghai, **China**, June 2011. "Catalysts Made of Earth Abundant Elements for Making C—C and H—H Bonds"
31. European Materials Research Society Spring Meeting 2011, Nice, **France**, May 2011. "Amorphous Molybdenum Sulfides as Efficient Catalysts for Electrochemical Hydrogen Evolution"
30. Northwestern University, Department of Chemistry, Evanston, IL, **U.S.A.**, April 2011.

29. Indiana University, Department of Chemistry, Bloomington, IN, **U.S.A.**, April 2011.
28. University of Illinois, Department of Chemistry, Urbana-Champaign, IL, **U.S.A.**, April 2011.
27. University of Erlangen-Nürnberg, Department of Chemistry and Pharmacy, Erlangen, **Germany**, March 2011.
Title for talk No. 27-30: "Catalysts Made of Earth Abundant Elements for Making C—C and H—H Bonds"
26. Pacific Northwestern National Laboratories, Richland, WA, **U.S.A.**, February 2011. "Bio-Mimetic and Bio-Inspired Chemistry of Dihydrogen: From Molecular Approaches to the Pursuit of Functional Surfaces"
25. University of Washington, Department of Chemistry, Seattle, WA, **U.S.A.**, February 2011.
24. California Institute of Technology, Division of Chemistry and Chemical Engineering, Pasadena, CA, **U.S.A.**, February 2011.
23. Stanford University, Department of Chemistry, Stanford, CA, **U.S.A.**, February 2011.
22. University of California, San Diego, Department of Chemistry and Biochemistry, La Jolla, CA, **U.S.A.**, January 2011.
21. University of California, Berkeley, Department of Chemistry, Berkeley, CA, **U.S.A.**, January 2011.
Title for talk No. 21-25: "Catalysts Made of Earth Abundant Elements for Making C—C and H—H Bonds"
20. PacificChem 2010, Symposium on New Advances in Metal Catalyzed Alkylation and Fluoroalkylation, Honolulu, Hawaii, **U.S.A.**, December 2010. "Ni-Catalyzed Cross Coupling of Non-Activated Alkyl Halides"
19. 3rd EuCheMS Congress, EYCA 2010 Symposium, Nürnberg, **Germany**, August 2010. "Cross Coupling of Non-Activated Alkyl Halides by a Well-Defined Ni Catalyst"
18. University of Basel, Department of Chemistry, Basel, **Switzerland**, April 2010.
17. University of Southern California, Department of Chemistry, Los Angeles, CA, **U.S.A.**, January 2010.
16. University of California, Los Angeles, Department of Chemistry and Biochemistry, Los Angeles, CA, **U.S.A.**, January 2010.
15. University of California, Santa Barbara, Department of Chemistry and Biochemistry, Santa Barbara, CA, **U.S.A.**, January 2010.
14. Technical University of Munich, Institute of Inorganic Chemistry, Munich, **Germany**, January 2010.
Title for talk No. 14-18: "Molecular Catalysts Based on Earth-Abundant Elements: from Cross-Coupling to Hydrogenase Mimic"
13. CUSO Summer School "Chemistry for a Sustainable World", Villars, **Switzerland**, September 2009.
CUSO lecture. "Molecular Chemistry for Energy and Sustainability"
12. 2nd International Symposium on Bioinorganic Chemistry of the New Era, Takayama, **Japan**, August 2009. "Bio-Mimetic and Bio-Inspired Chemistry of the [Fe]-Hydrogenase (Hmd)"
11. Advanced Materials and Technologies in Energy Conversion 2008, Villars, **Switzerland**, August 2008.
"Chemical Challenges for the Making of Solar Fuels"
10. Xiamen University, Department of Chemistry, Xiamen, **China**, December 2007. "From Novel Ligand Design to the Search for Molecular Hydrogen Evolution Catalysts"

Invited talks prior to coming to EPFL: 9

Publications

(* denotes corresponding author)

188. Enhanced rate performance of lithium-ion battery anodes using a cobalt-incorporated carbon conductive agent
Albert Claude Jean-Pierre Daubry, Zhuijun Xu, Ming Yang, Ya-Jun Cheng,* Yonggao Xia, and Xile Hu*
Inorganic Chemistry Frontiers (RSC), **2022**,
187. Bronze-Phase TiO₂ as Anode Materials in Lithium and Sodium-Ion Batteries (review)
Suzhe Liang, Xiaoyan Wang, Ruoxuan Qi, Ya-Jun Cheng,* Yonggao Xia, Peter Müller-Buschbaum,* Xile Hu*
Advanced Functional Materials, **2022**, 2201675.
186. Modulating Electric Field Distribution by Alkali Cations for CO₂ Electroreduction in Strongly Acidic Medium
Jun Gu, Shuo Liu, Weiyang Ni, Wenhao Ren, Sophia Haussener, Xile Hu*
Nature Catalysis, **2022**, 5, 268-276.
185. Streamlined Alkylation via Nickel-Hydride-Catalyzed Hydrocarbonation of Alkenes
Zhikun Zhang, Srikrishna Bera, Chao Fan, and Xile Hu*
Journal of the American Chemical Society, **2022**, 144, 7015–7029.
184. An efficient nickel hydrogen oxidation catalyst for hydroxide exchange membrane fuel cells
Weiyang Ni, Teng Wang, Florent E. Héroguel, Anna Krammer, Seunghwa Lee, Liang Yao, Andreas Schüler, Jeremy S. Luterbacher, Yushan Yan,* and Xile Hu*
Nature Materials **2022**, doi: 10.1038/s41563-022-01221-5.
183. Electronic Regulation of Ni Single Atom by Confined Ni Nanoparticles for Energy-Efficient CO₂ Electroreduction
Wenhao Ren, Xin Tan, Chen Jia, Anna Krammer, Qian Sun, Jiangtao Qu, Sean Smith, Andreas Schueler, Xile Hu,* Chuan Zhao*
Angewandte Chemie International Edition **2022**, e202203335.
182. In Vitro Biosynthesis of the [Fe]-Hydrogenase Cofactor Verifies the Proposed Biosynthetic Precursors
Sebastian Schaupp, Francisco J. Arriaza-Gallardo, Hui-jie Pan, Jörg Kahnt, Georgia Angelidou, Nicole Paczia, Kyle Costa, Xile Hu, Seigo Shima*
Angewandte Chemie International Edition **2022**, e202200994.
181. Oxidase-type C-H/C-H Coupling Using an Isoquinoline-Derived Organic Photocatalyst
Lei Zhang, Björn Pfund, Oliver S. Wenger,* and Xile Hu*
Angewandte Chemie International Edition **2022**, e202202649.
180. Branched Poly(aryl piperidinium) Membranes for Anion Exchange Membrane Fuel Cells
Xingyu Wu, Nanjun Chen, Harm-Anton Klok, Young Moo Lee, Xile Hu*
Angewandte Chemie International Edition **2022**, e202114892.
179. Tracking high-valent surface iron species in the oxygen evolution reaction on cobalt iron (oxy)hydroxides
Seunghwa Lee, Alike Moysiadou, You-Chiuan Chu, Hao Ming Chen and Xile Hu*
Energy and Environmental Science **2022**, 15, 206-214 .
178. Double-Atom Catalysts as a Molecular Platform for Heterogeneous Oxygen Evolution
Lichen Bai, Chia-Shuo Hsu, Duncan Alexander, Hao Ming Chen,* Xile Hu*
Nature Energy **2021**, 6, 1054–1066.
177. Photocatalytic decarboxylative coupling of aliphatic N-hydroxyphthalimide esters with polyfluoroaryl nucleophiles
Xiangli Yi, Runze Mao, Lara Lavrencic, Xile Hu*
Angewandte Chemie International Edition **2021**, 60, 23557-23563
176. Copper-Catalyzed Intermolecular Functionalization of Unactivated C(sp³)-H Bonds and Aliphatic Carboxylic Acids

- Runze Mao, Srikrishna Bera, Aurélya Christelle Turla, and Xile Hu*
Journal of the American Chemical Society, **2021**, *143*, 14667–14675.
175. Visible-Light-Driven Catalytic Deracemization of Secondary Alcohols
Zhikun Zhang, Xile Hu*
Angewandte Chemie International Edition **2021**, *60*, 22833-22838.
174. Diversifying metal-ligand cooperative catalysis in semi-synthetic [Mn]-hydrogenases
Huijie Pan, Gangfeng Huang, Matthew D. Wodrich, Farzaneh Fadaei Tirani, Kenichi Ataka, Seigo Shima,* Xile Hu*
Angewandte Chemie International Edition **2021**, *60*, 13350-13357.
173. Chiral Alkyl Amine Synthesis via Catalytic Enantioselective Hydroalkylation of Enecarbamates
Deyun Qian, Srikrishna Bera, Xile Hu*
Journal of the American Chemical Society, **2021**, *143*, 1959-1967.
172. Enantioselective C(sp³)–C(sp³) Cross-Coupling of Non-activated Alkyl Electrophiles via Nickel Hydride Catalysis
Srikrishna Bera, Runze Mao, Xile Hu*
Nature Chemistry **2021**, *13*, 270-277.
171. Intermolecular oxidative amination of unactivated alkenes by dual photoredox and copper catalysis
Xiangli Yi and Xile Hu*
Chemical Science, **2021**, *12*, 1901-1906.
170. Spectroscopic and Electrokinetic Evidence for a Bifunctional Mechanism of the Oxygen Evolution Reaction
Lichen Bai, Seunghwa Lee, Xile Hu*
Angewandte Chemie International Edition **2021**, *60*, 3095-3103.
169. High-Efficiency Anion Exchange Membrane Water Electrolysis Employing Non-Noble Metal Catalysts
Pengzuo Chen and Xile Hu*
Advanced Energy Materials **2020**, *10*, 2002285.
168. Tandem Photoredox and Copper-Catalyzed Decarboxylative C(sp³)–N Coupling of Anilines and Imines Using an Organic Photocatalyst
Guido Barzanò, Runze Mao, Marion Garreau, Jerome Waser, and Xile Hu*
Organic Letters **2020**, *22*, 5412–5416.
167. Mechanistic Investigations of Nickamine- Catalyzed Hydrosilylation of Alkenes: Nickel Nanoparticles Are the Active Species
Marten L. Ploeger, Ivan Buslov, Xile Hu*
Chimia **2020**, *74*, 444-449.
166. Mechanism of Oxygen Evolution Catalyzed by Cobalt Oxyhydroxide: Cobalt Superoxide Species as a Key Intermediate and Dioxygen Release as a Rate-Determining Step
Aliko Moysiadou, Seunghwa Lee, Chia-Shuo Hsu, Haoming Chen, Xile Hu*
Journal of the American Chemical Society **2020**, *142*, 11901–11914.
165. Nickel Catalysis Enables Convergent Paired Electrolysis for Direct Arylation of Benzylic C-H Bonds
Lei Zhang and Xile Hu*
Chemical Science **2020**, *11*, 10786-10791.
164. Efficient hydrogen oxidation catalyzed by strain-engineered nickel nanoparticles
Weiyang Ni, Teng Wang, Pascal Alexander Schouwink, Yu-Chun Chuang, Hao Ming Chen and Xile Hu*
Angewandte Chemie International Edition **2020**, *59*, 10797-10801.
163. Deciphering iron-dependent activity in oxygen evolution catalyzed by nickel iron layered double hydroxide
Seunghwa Lee, Lichen Bai, Xile Hu*
Angewandte Chemie International Edition **2020**, *59*, 8072-8077.

162. Sitaramanjaneya Mouli Thalluri, Lichen Bai, Cuncai Lv, Zhipeng Huang*, Xile Hu*, Lifeng Liu*
Strategies for Semiconductor/Electrocatalyst Coupling toward Solar-Driven Water Splitting
Advanced Science, **2020**, 7, 1902102.
161. Marten Ploeger, Andrea Darù, Jeremy N. Harvey* and Xile Hu*
Reductive Cleavage of Azoarene as a Key Step in Nickel-Catalyzed Amidation of Esters with Nitroarenes
ACS Catalysis, **2020**, 10, 2845-2854.
160. Andrea Darù, Xile Hu, Jeremy N. Harvey*
Iron-Catalyzed Reductive Coupling of Alkyl Iodides with Alkynes To Yield cis-Olefins: Mechanistic Insights from Computation
ACS Omega, **2020**, 5, 1586-1594.
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Arylsilylation of Electron-Deficient Alkenes via Cooperative Photoredox and Nickel Catalysis
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