

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)

- | | |
|---------|---|
| 2023 | IUPAC-Zhejiang NHU International Award for Advancement in Green Chemistry
Experienced Chemist Award |
| 2023 | Robert K. Grasselli Award in Catalysis, European Federation of Catalysis Societies |
| 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) |
| 2017-22 | 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 – 2021
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, 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

23. European Catalysis Congress 2023, Prague, **Czech**, August 2023. Plenary Lecture
22. The 2022 Swiss Chemical Society Fall Meeting, Zurich, **Switzerland**, September 2022. Plenary Lecture
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

108. Korea Advanced Institute of Science and Technology, Daejeon, **Korea**, December 2022. (online) "Conventional and unconventional electrocatalysts for oxygen evolution and CO₂ reduction"
107. Syngenta, Stein, **Switzerland**, June 2022. "Streamlined synthesis of C(sp³)-rich molecules via base-metal-catalyzed cross-coupling and hydrocarbonation reactions"

106. University of Lyon, Lyon, **France**, May **2022**. “Streamlined synthesis of C(sp³)-rich molecules via base-metal-catalyzed cross-coupling and hydrocarbonation reactions”
105. University of St-Andrews, Scotland, **UK**, March **2022**. 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. Pekin 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 Plank 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)

204. Anion Exchange Ionomers Enable Sustained Pure-Water Electrolysis Using Platinum-Group-Metal-Free Electrocatalysts
Yiwei Zheng, Ariana Serban, Haoyue Zhang, Nanjun Chen, Fang Song, and Xile Hu*
ACS Energy Letters, **2023**, 8, 5018-5024.
203. Smart chemistry for traceless release of anticancer therapeutics
Celine J. Prange, Xile Hu*, and Li Tang*
Biomaterials **2023**, 303, 122353.
202. Tailored water and hydroxide transport at a quasi-two-phase interface of membrane electrode assembly electrolyzer for CO electroreduction
Wenhao Ren, Wenchao Ma, Xile Hu*
Joule, **2023**, 7, 2349-2360.
201. Robust Piperidinium-Enriched Polystyrene Ionomers for Anion Exchange Membrane Fuel Cells and Water Electrolyzers
Nanjun Chen, Qu Jiang, Fang Song, Xile Hu*
ACS Energy Letters, **2023**, 8, 4043-4051.
200. Manganese Transfer Hydrogenases Based on the Biotin-Streptavidin Technology
Weijin Wang, Ryo Tachibana, Zhi Zou, Dongping Chen, Xiang Zhang, Kelvin Lau, Florence Pojer, Thomas R. Ward,* Xile Hu*
Angewandte Chemie International Edition **2023**, e202311896.
199. Synergistic interactions between PtRu catalyst and nitrogen-doped carbon support boost hydrogen oxidation
Weiyang Ni, Josephine Lederballe Meibom, Noor Ul Hassan, Miyeon Chang, You-Chiuan Chu, Anna Krammer, Songlan Sun, Yiwei Zheng, Lichen Bai, Wenchao Ma, Seunghwa Lee, Seongmin Jin, Jeremy S. Luterbacher, Andreas Schöler, Hao Ming Chen, William E. Mustain,* Xile Hu*
Nature Catalysis **2023**, Doi: 10.1038/s41929-023-01007-1.
198. Anion Exchange Membranes for Hydrogen Technologies: Challenges and Progress
Xingyu Wu, Xile Hu*
Chimia **2023**, 16, 77, 494.
197. Copper-Catalyzed Benzylic Functionalization of Lignin-Derived Monomers
Lara Lavrencic, Uttam Dhawa, Arthur Blumenstein, Xile Hu*
ChemSusChem **2023**, 16, e202300703.
196. Copper lattice tension boosts full-cell CO electrolysis to multi-carbon olefins and oxygenates
Wenchao Ma, Shunji Xie, Biao Zhang, Xiaoyang He, Xi Liu, Bingbao Mei, Fanfei Sun, Zheng Jiang, Li Lin, Qinghong Zhang, Bin Ren, Gang Fu, Xile Hu, and Ye Wang*
Chem **2023**, 9, 2161-2177.
195. Fluorinated Poly(Aryl Piperidinium) Membranes for Anion Exchange Membrane Fuel Cells
Xingyu Wu, Nanjun Chen, Chuan Hu, Harm-Anton Klok, Young Moo Lee,* Xile Hu*
Advanced Materials **2023**, 35, 2210432.
194. Operando identification of a side-on nickel superoxide intermediate and the mechanism of oxygen evolution on nickel oxyhydroxide
Seunghwa Lee, You-Chiuan Chu, Lichen Bai, Hao Ming Chen, Xile Hu*
Chem Catalysis **2023**, 3, 100475.
193. Ionomers Modify the Selectivity of Cu-Catalyzed Electrochemical CO₂ Reduction
Miyeon Chang, Wenhao Ren, Weiyang Ni, Seunghwa Lee, and Xile Hu*
ChemSusChem **2023**, 16, e202201687.
192. Enantio- and diastereoselective construction of vicinal C(sp³) centres via nickel-catalysed hydroalkylation of alkenes
Srikrishna Bera, Chao Fan, Xile Hu*
Nature Catalysis **2022**, 5, 1180-1187.

191. A Cation Concentration Gradient Approach to Tune the Selectivity and Activity of CO₂ Electroreduction
Wenhao Ren, Aoni Xu, Karen Chan, Xile Hu*
Angewandte Chemie International Edition **2022**, e2022141.
190. The Function of Two Radical-SAM Enzymes, HcgA and HcgG, in the Biosynthesis of the [Fe]-Hydrogenase Cofactor
Francisco J. Arriaza-Gallardo, Sebastian Schaupp, Yu-Cong Zheng, Mohd Farid Abdul-Halim, Pan Hui-Jie, Jörg Kahnt, Georgia Angelidou, Nicole Paczia, Xile Hu, Kyle Costa, Seigo Shima*
Angewandte Chemie International Edition **2022**, e20221323.
189. Enhancement of electrocatalytic oxygen evolution by chiral molecular functionalization of hybrid 2D electrodes
Yunchang Liang*, Karla Banjac, Kévin Martin, Nicolas Zigon, Seunghwa Lee, Nicolas Vanthuyne, Felipe Andrés Garcés-Pineda, José R. Galán-Mascarós, Xile Hu, Narcis Avarvari*, and Magalí Lingenfelder*
Nature Communications, **2022**, 13, 3356.
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**, 9, 3484-3493.
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, Weiyan 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
Weiyan 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**, 21, 804-810.
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, Aliko 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
Weiyan 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.
159. Zhikun Zhang, Xile Hu*
Arylsilylation of Electron-Deficient Alkenes via Cooperative Photoredox and Nickel Catalysis
ACS Catalysis, **2020**, 10, 777-781.
158. Huijie Pan, Xile Hu*
Biomimetic hydrogenation catalyzed by a manganese model of [Fe]-hydrogenase
Angewandte Chemie International Edition, **2020**, 59, 4942-4946
157. Deyun Qian, Xile Hu*
Ligand-Controlled Regiodivergent Hydroalkylation of Pyrrolines
Angewandte Chemie International Edition **2019**, 58, 18519-18523.
156. Aliko Moysiadou, Xile Hu*
Stability profiles of transition metal oxides in the oxygen evolution reaction in alkaline medium
Journal of Materials Chemistry A, **2019**, 7, 25865-25877
155. Renyi Shi, Matthew D. Wodrich, Hui-Jie Pan, Farzaneh Fadaei Tirani, Xile Hu*
Functional Models of the Nickel Pincer Nucleotide Cofactor of Lactate Racemase
Angewandte Chemie International Edition **2019**, 58, 16869-16872.
154. Runze Mao, Srikrishna Bera, Alexis Cheseaux and Xile Hu*
Deoxygenative Trifluoromethylthiolation of Carboxylic Acids
Chemical Science, **2019**, 10, 9555-9559.
153. Lichen Bai, Chia-Shuo Hsu, Duncan Alexander, Hao Ming Chen,* Xile Hu*
A Cobalt-Iron Double-Atom Catalyst for the Oxygen Evolution Reaction
Journal of the American Chemical Society, **2019**, 141, 14190-14199.
152. Srikrishna Bera and Xile Hu*
Nickel-Catalyzed Regioselective Hydroalkylation and Hydroarylation of Alkenyl Boronic Esters
Angewandte Chemie International Edition **2019**, 58, 13854-13859.
151. Jun Gu, Chia-Shuo Hsu, Lichen Bai, Hao Ming Chen*, and Xile Hu*
Atomically dispersed Fe³⁺ sites catalyze efficient CO₂ electroreduction to CO
Science, **2019**, 364, 1091-1094.

150. Gangfeng Huang, Tristan Wagner, Matthew D. Wodrich, Kenichi Ataka, Eckhard Bill, Ulrich Ermler, Xile Hu and Seigo Shima*
The atomic-resolution crystal structure of activated [Fe]-hydrogenase
Nature Catalysis, **2019**, 2, 537–543.
149. Jun Gu and Xile Hu*
Homogeneous Reactions Limit the Efficiency of Gold Electrodes in CO₂ Electroreduction
ACS Central Science, **2019**, 5, 933-935.
148. Hui-Jie Pan, Gangfeng Huang, Matthew D. Wodrich, Farzaneh Fadaei Tirani, Kenichi Ataka, Seigo Shima* and Xile Hu*
A catalytically active [Mn]-hydrogenase incorporating a non-native metal cofactor
Nature Chemistry **2019**, 11, 669-675.
147. Seunghwa Lee, Karla Banjac, Magali Lingenfelder, Xile Hu*
Oxygen Isotope Labelling Experiments Reveal Different Reaction Sites for the Oxygen Evolution Reaction on Nickel and Nickel Iron Oxides
Angewandte Chemie International Edition **2019**, 58, 10295-10299.
146. Sijie Liu, Antoine P. van Muyden, Lichen Bai, Xinjiang Cui, Zhaofu Fei, Xuehui Li,* Xile Hu* and Paul J. Dyson*
Metal-sulfide catalysts derived from lignosulfonate and their efficient use in hydrogenolysis
ChemSusChem **2019**, 19, 3271-3277.
145. Shi, R.; Zhang, Z.; **Hu, X.L.***
Nickamine and Analogous Nickel Pincer Catalysts for Cross-Coupling of Alkyl Halides and Hydrosilylation of Alkenes
Accounts of Chemical Research **2019**, 52, 1471-1483.
144. Ni, W.Y.; Krammer, A.; Hsu, C-S. ; Chen, H.M. ; Schueler, A. ; **Hu, X.L.***
Ni₃N as an active hydrogen oxidation reaction catalyst in alkaline medium
Angewandte Chemie International Edition **2019**, 58, 7445-7449.
143. Shi, R.; **Hu, X.L.***
From Alkyl Halides to Ketones: Nickel-Catalyzed Reductive Carbonylation Utilizing Ethyl Chloroformate as a Carbonyl Source
Angewandte Chemie International Edition **2019**, 58, 7454-7458.
142. Alkan-Zambada, M.; **Hu, X.L.***
Cu-Catalyzed Photoredox Chlorosulfonation of Alkenes and Alkynes
Journal of Organic Chemistry **2019**, 84, 4525-4533.
141. Liu, S.J.; Bai, L.C.; van Muyden, A.P.; Huang, Z.J.; Cui, X.J.; Fei, Z.F.; Li, X.H.* **Hu, X.L.***,* Dyson, P.J.*
Oxidative cleavage of β -O-4 bonds in lignin model compounds with a single-atom Co catalyst
Green Chemistry **2019**, 21, 1974-1981.
140. Song, F.; Busch, M.; Lassalle-Kaiser, B.; Hsu, C-S.; Petkucheva, E.; Bensimon, M.; Chen, H.M.*; Corminboeuf, C.*; **Hu, X.L.***
An Unconventional Iron Nickel Catalyst for the Oxygen Evolution Reaction
ACS Central Science, **2019**, 5, 558-568.
139. Zhang, Z.K.; Bai, L.C. ; **Hu, X.L.***
Alkene Hydrosilylation Catalyzed by Easily Assembled Ni(II)-Carboxylate MOFs
Chemical Science **2019**, 10, 3791-3795.
138. Zhang, L.; Liardet, L.; Luo, J.S.; Ren, D. ; Grätzel, M.; **Hu, X.L.***

- Photoelectrocatalytic Arene C-H Amination
Nature Catalysis **2019**, 2, 366-373.
137. Liardet, L.; Katz, J.E.; Luo, J.S.; Grätzel, M.; **Hu, X.L.***
An Ultrathin Cobalt-Iron Oxide Catalyst for Water Oxidation on Nanostructured Hematite Photoanodes
Journal of Materials Chemistry A **2019**, 7, 6012-6020.
136. Cheung, C.W*.; Shen, Ni.; Wang, S.P.; Ullah, A.; **Hu, X.L.**; Ma, J.A.*
Manganese-mediated reductive amidation of esters with nitroarenes
Organic Chemistry Frontiers **2019**, 6, 756-761.
135. Yi, X; **Hu, X.L.***
Formal Aza-Wacker Cyclization by Tandem Electrochemical Oxidation and Copper Catalysis
Angewandte Chemie International Edition **2019**, 58, 4700-4704.
134. Barzanò, G.; Cheseaux, A.; **Hu, X.L.***
Z-Selective Synthesis of Vinyl Boronates through Fe-Catalyzed Alkyl Radical Addition
Organic Letters **2019**, 21, 490-493.
133. Alkan-Zambada, M.; **Hu, X.L.***
Cu Photoredox Catalysts Supported by a 4,6-Disubstituted 2,2-Bipyridine Ligand: Application in Chlorotrifluoromethylation of Alkenes
Organometallics **2018**, 37, 3928-3935.
132. Mao, R.; Balon, J.; **Hu, X.L.***
Decarboxylative C(sp³)-O Cross Coupling
Angewandte Chemie International Edition **2018**, 57, 13624-13628.
131. Xu, K.L.; Song, F.*; Gu, J.; Xu, X.; Liu, Z.N.*; **Hu, X.L.***
Solvent-Induced Surface Hydroxylation of Layered Perovskite Sr₃FeCoO_{7-δ} for Enhanced Oxygen Evolution Catalysis
Journal of Materials Chemistry A **2018**, 6, 14240-14245.
130. Mao, R.; Balon, J.; **Hu, X.L.***
Cross Coupling of Alkyl Redox-Active Esters with Benzophenone Imines via Tandem Photoredox and Copper Catalysis
Angewandte Chemie International Edition **2018**, 57, 9501-9504.
129. Song, F.; Bai., Li.C.; Moysiadou, A. ; Lee, S.H. ; Hu, C. ; Liardet, L. ; **Hu, X.L.***
Transition metal oxides as electrocatalysts for the oxygen evolution reaction in alkaline solutions: An application-inspired renaissance
Journal of the American Chemical Society **2018**, 140, 7748-7759.
128. Cheung, C.W.; Ma, J.A.; **Hu, X.L.***
Manganese-Mediated Reductive Transamidation of Tertiary Amides with Nitroarenes
Journal of the American Chemical Society **2018**, 140, 6789-6792.
127. Mao, R.; Frey, A.; Balon, J.; **Hu, X.L.***
Decarboxylative C(sp³)-N Cross Coupling via Synergetic Photoredox and Copper Catalysis
Nature Catalysis **2018**, 1, 120-126.
126. Stern, L.A.; Mocny, P.; Vrabel, H.; Bilgic, T.; Klok, H.A.*; **Hu, X.L.***
A polymer-brush templated three-dimensional molybdenum sulfide catalyst for hydrogen evolution
ACS Applied Materials and Interface **2018**, 10, 6253-6261
125. Gu, J.; Héroguel, F.; Luterbacher, J. ; **Hu, X.L.***

- Densely packed, ultra-small SnO nanoparticles for enhanced activity and selectivity in electrochemical CO₂ reduction
Angewandte Chemie International Edition **2018**, 57, 2943-2947
124. Wodrich, D.W.; **Hu, X.L.***
Natural inspirations for metal–ligand cooperative catalysis
Nature Reviews Chemistry **2018**, 2, 0099.
123. Liardet, L.; **Hu, X.L.***
Amorphous Cobalt Vanadium Oxide as a Highly Active Electrocatalyst for Oxygen Evolution
ACS Catalysis **2018**, 8, 644-650 .
122. Cheung, C.W.; Ploeger, M.L.; **Hu, X.L.***
Amide Synthesis via Nickel-Catalysed Reductive Aminocarbonylation of Aryl Halides with Nitroarenes
Chemical Science **2018**, 9, 655-659.
121. Song, F.; Katz, J. ; **Hu, X.L.***
Catalyst Surface Dynamics Reveals a Simple Geometric Descriptor of Activity
Joule 2017, 1, 421-422.
120. Cheung, C.W.; Ploeger, M.L.; **Hu, X.L.***
Nickel-Catalyzed Reductive Transamidation of Secondary Amides with Nitroarenes
ACS Catalysis 2017, 7, 7092-7096.
119. Zhang, L.; **Hu, X.L.***
Room temperature C(sp²)-H oxidative chlorination via photoredox catalysis
Chemical Science **2017**, 8, 7009-7013.
118. Bai, L.P. ; Wagner, T. ; Xu, T. ; **Hu, X.L.**; Ermler, U.; Shima, S.*
Water-bridged H-bonding network contributes to the catalysis of a SAM-dependent C-methyltransferase HcgC
Angewandte Chemie International Edition **2017** , 56, 10806-10809.
117. Bai, L. ; Fujishiro, T. ; Huang, G. ; Koch, J. ; Takabayashi, A.; Yokono, M. ; Tanaka, A. ; Xu, T. ; **Hu, X.L.**; Ermler, U.; Shima, S*
Towards artificial methanogenesis: biosynthesis of the [Fe]-hydrogenase cofactor and characterization of the semi-synthetic hydrogenase
Faraday Discussion **2017**, 198, 37-58
116. Cheung, C.W.; Ploeger, M.L.; **Hu, X.L.***
Direct Amidation of Esters with Nitroarenes
Nature Communications **2017**, 8, 14878.
115. Stern, L.-A.; Liardet, L.; Mayer, M.T.; Morales-Guio, C.G.; Grätzel, M.; **Hu, X.L.***
Photoelectrochemical deposition of CoP on cuprous oxide photocathodes for solar hydrogen production
Electrochimica Acta **2017**, 235, 311-316.
114. Xu, T.; Wodrich, M.D.; Scopelliti, R. ; Corminboeuf, C.C. ; **Hu, X.L.***
Nickel pincer model of the active site of lactate racemase involves ligand participation in hydride transfer
Proceedings of the National Academy of Sciences **2017**, 114, 1242-1245.
113. Zhurkin, F.E.; Wodrich, M.D.; **Hu, X.L.***
A Monometallic Iron(I) Organoferrate
Organometallics **2017**, 36, 499-501.
112. Buslov, I.; Song, F.; **Hu, X.L.***

- An Easily-Accessed Nickel Nanoparticle Catalyst for Alkene Hydrosilylation with Tertiary Silanes
Angewandte Chemie International Edition **2016**, 55, 12295-12299.
111. Di Franco, T.; Stojanovic, M.; Keller, S.C.; Scopelliti, R.; **Hu, X.L.***
A Structure-Activity Study of Nickel NNN Pincer Complexes for Alkyl-Alkyl Kumada and Suzuki-Miyaura Coupling Reactions
Helvetica Chimia Acta **2016**, 99, 830-847.
110. Cheung, C.W; **Hu, X.L.***
Amine synthesis via iron-catalysed reductive coupling of nitroarenes with alkyl halides
Nature Communications **2016**, 7, 12494.
109. Xu, X.,⁺ Song, F.,^{*,†} **Hu, X.L.***
A nickel iron diselenide-derived efficient oxygen-evolution catalyst
Nature Communications **2016**, 7, 12324.
108. Morales-Guio, C.G.; Liardet, L.; **Hu, X.L.***
Oxidatively Electrodeposited Thin-Film Transition Metal (Oxy)Hydroxides as Oxygen Evolution Catalysts
Journal of the American Chemical Society **2016**, 138, 8946–8957.
107. Zhurkin, F.E.; **Hu, X.L.***
Gamma-selective allylation of (E)-alkenylzinc iodides prepared by reductive coupling of arylacetylenes with alkyl iodides
Journal of Organic Chemistry **2016**, 81, 5795.
106. Fujishiro, T. ; Bai, L.P. ; Xu, T. ; Xie, X.L.; Schick, M. ; Kahnt, J.; Rother, M.; **Hu, X.L.**; Ermler, U.; Shima, S.*
Identification of HcgC as SAM-Dependent Pyridinol Methyltransferase in [Fe]-Hydrogenase Cofactor Biosynthesis
Angewandte Chemie International Edition **2016**, 55, 9648–9651.
105. Stern, L.A.; **Hu, X.L.***
Efficient Water Electrolysis Using Ni₂P as a Bifunctional Catalyst: Unveiling the Oxygen Evolution Catalytic Properties of Ni₂P
Chimia **2016**, 70, 240.
104. Buslov, I.; Keller, S.; **Hu, X.L.***
Alkoxy hydrosilanes as surrogates of gaseous silanes for hydrosilylation of alkenes
Organic Letters **2016**, 18, 1928–1931.
103. Xu, T.; Yin, C.J. M.; Wodrich, M.D.; Mazza, S.; Schultz, K.M.; Scopelliti, R. ; **Hu, X.L.***
A Functional Model of [Fe]-Hydrogenase
Journal of the American Chemical Society **2016**, 138, 3270-3273.
102. Bauer G.; **Hu, X.L.***
Recent developments of iron pincer complexes for catalytic applications
Inorganic Chemistry Frontiers **2016**, 3, 741-765.
101. Yan, W.D.; Li, K.X.; Lyu, L.; Song, F.; He, J.; Niu, D.M.; Liu, L.; **Hu, X.L.**; Chen, X.B.*
From Water Oxidation to Reduction: Transformation from Ni₃Co₃-xO₄ Nanowires to NiCo/NiCoO_x Heterostructures
ACS Applied Materials & Interfaces **2016**, 8, 3208–3214.
100. Wang, P.,⁺ Song, F.,^{*,†} Amal, R.; Ng, Y.H.; **Hu, X.L.***
Efficient Water Splitting Catalyzed by Cobalt Phosphide Based Nano-Needle Arrays Supported on Carbon Cloth
ChemSusChem **2016**, 9, 472-477.
99. Song, F.; Schenk, K.; **Hu, X.L.***

- A nanoporous oxygen evolution catalyst synthesized by selective electrochemical etching of perovskite hydroxide $\text{CoSn}(\text{OH})_6$ nanocubes
Energy & Environmental Science **2016**, 9, 473-477.
98. Perez Garcia P. M.;⁺ Di Franco, T.;⁺ Epenoy, A.; Scopelliti R.; **Hu, X.L.***
From dimethylamine to pyrrolidine: the development of an improved nickel pincer complex for cross-coupling of non-activated secondary alkyl halides
ACS Catalysis **2016**, 6, 258-261.
97. (Highlight) A Novel Nickel Pincer Complex in the Active Site of Lactate Racemase
Xu, T.; Bauer, G.; **Hu, X.L.***
ChemBioChem **2016**, 17, 31-32.
96. Shima, S.;^{*} Chen, D.F.; Xu, T.; Wodrich, M.D.; Fujishiro, T.; Schultz, K.M.; Kahnt, J.; Ataka, K.; **Hu, X.L.***
Reconstitution of [Fe]-hydrogenase using model complexes
Nature Chemistry **2015**, 7, 995-1002.
95. Cheung, C.W.; **Hu, X.L.***
Stereoselective Synthesis of Trisubstituted Alkenes via Sequential Iron-Catalyzed Reductive anti-Carbozincation of Terminal Alkynes and Base-Metal-Catalyzed Negishi Cross-Coupling
Chemistry, A European Journal **2015**, 21, 18439-18444.
94. Di Franco, T.; Epenoy, A.; **Hu, X.L.***
Synthesis of E-Alkyl Alkenes from Terminal Alkynes via Ni-Catalyzed Cross-Coupling of Alkyl Halides with B-Alkenyl-9-Borabicyclo[3.3.1]nonanes
Organic Letters **2015**, 17, 4910-4913.
93. Buslov, I.; Becouse, J.; Mazza, S.; Montandon-Clerc, M.; **Hu, X.L.***
Chemoselective Alkene Hydrosilylation Catalyzed by Nickel Pincer Complexes
Angewandte Chemie International Edition **2015**, 54, 14523-14526.
92. Morales-Guio, C.G.; Mayer, M.T.; Yella, A.; Tilley, S.D.; Grätzel, M.; **Hu, X.L.***
An Optically Transparent Iron Nickel Oxide Catalyst for Solar Water Splitting
Journal of the American Chemical Society **2015**, 137, 9927-9936.
91. Oh Y.; **Hu, X.L.***
Ionic liquids enhance the electrochemical CO_2 reduction catalyzed by MoO_2
Chemical Communications **2015**, 51, 13698-13701.
90. Stern, L.A.; Feng, L.G.; Song, F.; **Hu, X.L.***
 Ni_2P as a Janus catalyst for water splitting: the oxygen evolution activity of Ni_2P nanoparticles
Energy & Environmental Science **2015**, 8, 2347-2351.
89. Morales-Guio, C.G.; Thorwarth, K.; Niesen, B.; Liardet, L.; Patscheider, J.; Ballif, C.; **Hu, X.L.***
Solar Hydrogen Production by Amorphous Silicon Photocathodes Coated with a Magnetron Sputter Deposited Mo_2C Catalyst
Journal of the American Chemical Society **2015**, 137, 7035-7038.
88. Hydrogen-activating models of hydrogenases
Xu, T.; Chen, D.F.; **Hu, X.L.***
Coordination Chemistry Reviews **2015**, 303, 32-41.
87. Cheung, C.W.; Zhurkin, F.E.; **Hu, X.L.***
Z-Selective olefin synthesis via iron-catalyzed reductive coupling of alkyl halides with terminal arylalkynes
Journal of the American Chemical Society **2015**, 137, 4932-4935.
86. Mazza, S.; Scopelliti, R.; **Hu, X.L.***
Chemoselective hydrogenation and transfer hydrogenation of aldehydes catalyzed by iron(II) PONOP pincer complexes
Organometallics **2015**, 34, 1538-1545.

85. Hansen, M.H.; Stern, L.-A.; Feng, L.G.; Rossmeisl, J.;* **Hu, X.L.***
Widely available active sites on Ni₂P for electrochemical hydrogen evolution – Insights from first principles calculations
Physical Chemistry Chemical Physics **2015**, *17*, 10823-10839.
84. Bauer, G.; Cheung, C.W.; **Hu, X.L.***
Cross-Coupling of Nonactivated Primary and Secondary Alkyl Halides with Aryl Grignard Reagents Catalyzed by Chiral Iron Pincer Complexes
Synthesis **2015**, *47*, 1726-1732.
83. Murray, K.A.; Wodrich, M.D.; **Hu, X.L.***; Corminboeuf, C.*
Toward Functional Type III [Fe]-Hydrogenase Biomimics for H₂ Activation: Insights from Computation
Chemistry, A European Journal **2015**, *21*, 3987-3996.
82. Perez Garcia, P.M.; Ren, P.; Scopelliti, R.; **Hu, X.L.***
Nickel-Catalyzed Direct Alkylation of Terminal Alkynes at Room Temperature: A Hemilabile Pincer Ligand Enhances Catalytic Activity
ACS Catalysis **2015**, *5*, 1164-1171.
81. Bauer, G.; Wodrich, M.D.; Scopelliti, R.; **Hu, X.L.***
Iron Pincer Complexes as Catalysts and Intermediates in Alkyl–Aryl Kumada Coupling Reactions
Organometallics **2015**, *34*, 289-298.
80. Lassalle-Kaiser, B.*; Merki, D.; Vrubel, H.; Gul, S.; Yachandra, V.K.; **Hu, X.L.***; Yano, J.*
Evidence from In Situ X-Ray Absorption Spectroscopy for the Involvement of Terminal Disulfide in the Reduction of Protons by an amorphous Molybdenum Sulfide Electrocatalyst
Journal of the American Chemical Society **2015**, *137*, 314-321.
79. Xu, T.; **Hu, X.L.***
Copper-Catalyzed 1,2-Addition of α -Carbonyl Iodides to Alkynes
Angewandte Chemie International Edition **2015**, *54*, 1307-1311.
78. Morales-Guio, C. G.; Liardet, L.; Mayer, M.T.; Tilley, S.D.; Grätzel, M.; **Hu, X.L.***
Photoelectrochemical Hydrogen Production in Alkaline Solutions using Cu₂O Coated with Earth-Abundant Hydrogen Evolution Catalysts
Angewandte Chemie International Edition **2015**, *54*, 664-667
77. Song, F.; **Hu, X.L.***
Ultrathin cobalt-manganese layered double hydroxide is an efficient oxygen evolution catalyst
Journal of the American Chemical Society **2014**, *136*, 16481–16484.
76. Stern, L.-A.; **Hu, X.L.***
Enhanced oxygen evolution activity by NiO_x and Ni(OH)₂ nanoparticles
Faraday Discussions **2014**, *176*, 363-379.
75. Morales-Guio, C.G.; **Hu, X.L.***
Amorphous Molybdenum Sulfides as Hydrogen Evolution Catalysts
Accounts of Chemical Research **2014**, *47*, 2671–2681.
74. Song, F.; **Hu, X.L.***
Exfoliation of layered double hydroxides for enhanced oxygen evolution catalysis
Nature Communications **2014**, *5*, 4477.
73. Buslov, I.; **Hu, X.L.***
Transition-Metal-Free Intermolecular α -C-H Amination of Ethers at Room Temperature
Advanced Synthesis and Catalysis **2014**, *356*, 3325-3330.
72. Breitenfeld, J.; Wodrich, M.D.; **Hu, X.L.***
Bimetallic oxidative addition in nickel-catalyzed alkyl-aryl Kumada coupling reactions
Organometallics **2014**, *33*, 5708-5715.
71. Breitenfeld, J.; **Hu, X.L.***
Mechanistic Insights into Nickamine-catalyzed Alkyl-Alkyl Cross-coupling Reactions
Chimia **2014**, *68*, 235–238.

70. Cheung, C.W.; Ren, P.; **Hu, X.L.***
Mild and Phosphine-Free Iron-Catalyzed Cross-Coupling of Non-activated Secondary Alkyl Halides with Alkynyl Grignard Reagents
Organic Letters **2014**, *16*, 2566–2569.
69. Amstutz, V.; Toghill, K.E.; Powlesland, F.; Vrubel, H.; Comninellis, C.; **Hu, X.L.**; Girault, H.H.*
Renewable hydrogen generation from a dual-circuit redox flow battery
Energy & Environmental Science **2014**, *7*, 2350-2358.
68. Xu, T.; Cheung, C.W.; **Hu, X.L.***
Iron-catalyzed 1,2-Addition of Perfluoroalkyl Iodides to Alkynes and Alkenes
Angewandte Chemie International Edition **2014**, *53*, 4910-4914.
67. Morales-Guio, C.G.; Stern, L.A.; **Hu, X.L.***
Nanostructured hydrotreating catalysts for electrochemical hydrogen evolution
Chemical Society Reviews **2014**, *43*, 6555-6569.
66. Oh, Y.J.; Vrubel, H.; Guidoux, S.; **Hu, X.L.***
Electrochemical reduction of CO₂ in organic solvents catalyzed by MoO₂
Chemical Communications **2014**, *50*, 3878-3881.
65. Feng, L.G.; Vrubel, H.; Bensimon, M. **Hu, X.L.***
Easily-prepared dinickel phosphide (Ni₂P) nanoparticles as an efficient and robust electrocatalyst for hydrogen evolution
Physical Chemistry Chemical Physics **2014**, *16*, 5917-5921.
64. Chang, J.F.;† Feng, L.G.;† Liu, C.P.; Xing, W.*; **Hu, X.L.***
Ni₂P enhances the activity and durability of Pt anode catalyst in direct methanol fuel cell
Energy & Environmental Science **2014**, *7*, 1628-1632. († equal contribution)
63. Morales-Guio, C.G.; Tilley, S. D.; Vrubel, H.; Grätzel, M.; **Hu, X.L.***
Hydrogen evolution from a copper(I) oxide photocathode coated with an amorphous molybdenum sulphide catalyst
Nature Communication **2014**, *5*, 3059.
62. Hu, B.W.; Chen, D.F.* **Hu, X.L.**
Synthesis and Reactivity of Mononuclear Iron Models of [Fe]-Hydrogenase that Contain an Acylmethylpyridinol Ligand
Chemistry, A European Journal **2014**, *20*, 1677-1682.
61. Chang, J.F.;† Feng, L.G.;† Liu, C.P.; Xing, W.*; **Hu, X.L.***
An effective Pd-Ni₂P/C anode catalyst for direct formic acid fuel cell
Angewandte Chemie International Edition **2014**, *53*, 122-126. († equal contribution)
60. Liao, L.; Wang, S.N.; Xiao, J.J.; Bian, X.J.; Zhang, Y.H.; Scanlon, M.D.; **Hu, X.L.**; Tang, Y*; Liu, B.H*; Girault H.H.
Nanoporous Molybdenum Carbide Nanowire as an Electrocatalyst for the Hydrogen Evolution Reaction
Energy & Environmental Science **2014**, *7*, 387-392.
59. Di Franco, T.; Boutin, N.; **Hu, X.L.***
Suzuki-Miyaura Cross-Coupling Reactions of Unactivated Alkyl Halides Catalyzed by a Nickel Pincer Complex
Synthesis **2013**, *45*, 2949-2958.
58. Vrubel, H.; Moehl, T.; Grätzel, M.; **Hu, X.L.***
Revealing and Accelerating Slow Electron Transport in Amorphous Molybdenum Sulphide Particles for Hydrogen Evolution Reaction

- Chemical Communications* **2013**, 49, 8985-8987.
57. Vrubel, H.; **Hu, X.L.***
Growth and Activation of an Amorphous Molybdenum Sulfide Hydrogen Evolving Catalyst
ACS Catalysis **2013**, 3, 2002-2011.
56. Breitenfeld, J.; Ruiz, J.; Wodrich, M.D.; **Hu, X.L.***
Bimetallic Oxidative Addition Involving Radical Intermediates in Nickel-Catalyzed Alkyl-Alkyl Kumada Coupling Reactions
Journal of the American Chemical Society **2013**, 135, 12004-12012.
55. Schultz, K.M.; Chen, D.F.; **Hu, X.L.***
[Fe]-hydrogenase and Models that Contain Iron-Acyl Ligation
Chemistry, An Asian Journal **2013**, 8, 1068-1075.
54. Wodrich, M.; **Hu, X.L.***
Electronic Elements Governing the Binding of Small Molecules to a [Fe]-hydrogenase Mimic
European Journal of Inorganic Chemistry **2013**, 22-23, 3993-3999.
53. Hu, B.W.; Chen, D.F.;* **Hu, X.L.***
Reversible Dimerization of Mononuclear Models of [Fe]-hydrogenase
Chemistry, A European Journal **2013**, 19, 6221-6224.
52. Scanlon, M.D.; Bian, X.J.; Vrubel, H.; Amstutz, V.; Schenk, K.; **Hu, X.L.**; Liu, B.H.; Girault, H.H.*
Low-cost industrially available molybdenum boride and carbide as “platinum-like” catalysts for the hydrogen evolution reaction in biphasic liquid system
Physical Chemistry Chemical Physics **2013**, 15, 2847-2857.
51. Oh, Y.J.; **Hu, X.L.***
Organic molecules as mediators and catalysts for photocatalytic and electrocatalytic CO₂ reduction
Chemical Society Reviews **2013**, 42, 2253-2261.
50. Vrubel, H.; **Hu, X.L.***
Molybdenum boride and carbide catalyze hydrogen evolution in both acidic and basic solutions
Angewandte Chemie International Edition **2012**, 51, 12703-12706.
49. Perez Garcia, P.M.; Di Franco, T.; Orsino, A.; Ren, P.; **Hu, X.L.***
Nickel-Catalyzed Diastereoselective Alkyl-Alkyl Kumada Coupling
Organic Letters **2012**, 14, 4286-4289.
48. Ren, P.; Stern, L.A.; **Hu, X.L.***
Copper-Catalyzed Cross Coupling of Functionalized Alkyl Halides and Tosylates with Secondary and Tertiary Alkyl Grignard Reagents
Angewandte Chemie International Edition **2012**, 51, 9110-9113.
47. Hu, B.W.; Chen, D.F.;* **Hu, X.L.***
A Pyridinol Acyl Cofactor in the Active Site of [Fe]-hydrogenase Evidenced by the Reactivity of Model Complexes
Chemistry, A European Journal **2012**, 18, 11528-11530.
46. Merki, D.; Vrubel, H.; Rovelli, L.; Fierro, S.; **Hu, X.L.***
Fe, Co, and Ni Ions Promote the Catalytic Activity of Amorphous Molybdenum Sulfide Films for Hydrogen Evolution
Chemical Science **2012**, 3, 2515-2525.
45. Ge, P.Y.; Scanlon, M.D.; Peljo, P.; Bian, X.J.; Vrubel, H.; O'Neill, A.; Coleman, J.N.; Cantoni, M.; **Hu, X.L.**; Kontturi, K.; Liu, B.H.; Girault, H.H.*

- Hydrogen evolution across nano-Schottky junctions at carbon supported MoS₂ catalysts in biphasic liquid systems
Chemical Communications **2012**, 48, 6484-6486.
44. Ge, P.Y.; Todorova, T. K.; Hatay, I.; Avendano, O.; Johana, A.; Vrubel, H.; Agudelo, M.; Alejandro, M.; **Hu, X.L.**; Corminboeuf, C.; Girault, H.H.*
Biphasic water splitting by osmocene
Proceedings of the National Academy of Science, USA **2012**, 109, 11558-11563.
43. **Hu, X.L.***
Nickamine: a general catalyst for cross coupling of alkyl halides and direct alkylation
Chimia **2012**, 66, 154-158.
42. Madhira, V.N.; Ren, P.; Vechorkin, V.; **Hu, X.L.**; Vicic, D.A.*
Synthesis and electronic properties of a pentafluoroethyl-derivatized nickel pincer complex
Dalton Transactions **2012**, 41, 7915-7919.
41. Ren, P.; Salihu, I.; Scopelliti, R.; **Hu, X.L.***
Copper-catalyzed alkylation of benzoxazoles with secondary alkyl halides
Organic Letters **2012**, 14, 1748-1751.
40. Breitenfeld, J.; Scopelliti, R.; **Hu, X.L.***
Synthesis, characterization, catalytic application of a nickel pincer hydride complex
Organometallics **2012**, 31, 2128-2136.
39. Vrubel, H.; Merki, D.; **Hu, X.L.***
Hydrogen evolution catalyzed by MoS₃ and MoS₂ particles
Energy & Environmental Science **2012**, 5, 6136-6144.
38. Chen D.F.; Scopelliti, R.; **Hu, X.L.***
Reversible protonation of a thiolate ligand in an [Fe]-hydrogenase model complex
Angewandte Chemie International Edition **2012**, 51, 1919-1921.
37. Vechorkin O.; Godinat, A.; Scopelliti, R.; **Hu, X.L.***
Cross coupling of non-activated alkyl halides with alkynyl Grignard reagents: a nickel pincer complex as the catalyst
Angewandte Chemie International Edition **2011**, 50, 11777-11781.
36. **Hu, X.L.***
Base metal complexes as homogeneous catalysts and enzyme mimics
Chimia **2011**, 65, 646-648.
35. Hatay, I.; Ge, P.Y.; Vrubel, H.; **Hu, X.L.**; Girault, H.H.*
Hydrogen evolution at polarised liquid/liquid interfaces catalyzed by molybdenum disulfide
Energy & Environmental Science **2011**, 4, 4246-4251.
34. **Hu, X.L.***
Ni-catalyzed cross coupling of non-activated alkyl halides: a mechanistic perspective
Chemical Science **2011**, 2, 1867-1886.
33. Merki, D.; **Hu, X.L.***
Recent Development of Molybdenum and Tungsten Sulfides as Hydrogen Evolution Catalysts
Energy & Environmental Science **2011**, 4, 3878-3888.
32. Chen, D. F.; Ahrens-Botzong, A.; Schünemann, V.; Scopelliti, R.; **Hu, X.L.***
Synthesis and Characterization of a Series of Model Complexes of the Active Site of [Fe]-Hydrogenase (Hmd)
Inorganic Chemistry **2011**, 50, 5249-5257.

31. Chen, D. F.; Scopelliti, R.; **Hu, X.L.***
A Five-Coordinate Iron Center in the Active Site of [Fe]-Hydrogenase: Hints from a Model Study
Angewandte Chemie International Edition **2011**, 50, 5671-5673.
30. Ren, P.; Vechorkin, O.; von Allmen, K.; Scopelliti, R.; **Hu, X.L.***
A Structure-Activity Study of Ni-Catalyzed Alkyl-Alkyl Kumada Coupling. Improved Catalysts for Coupling of Secondary Alkyl Halides
Journal of the American Chemical Society **2011**, 133, 7084-7095.
29. Merki, D.; Fierro, S.; Vrubel, H.; **Hu, X.L.***
Amorphous Molybdenum Sulfide Films as Catalysts for Electrochemical Hydrogen Production in Water
Chemical Science **2011**, 2, 1262-1267.
28. Ren, P.; Vechorkin, O.; Csok, Z.; Salihu, I.; Scopelliti, R.; **Hu, X.L.***
Pd, Pt, and Ru complexes of a pincer bis(amino)amide ligand
Dalton Transactions **2011**, 40, 8906-8911.
27. Vechorkin, O.; **Hu, X.L.***
Bis[(2-dimethylamino)phenyl]amine nickel(II) chloride
e-EROS, Encyclopedia of Reagents for Organic Synthesis. Wiley (**2011**), article RN01347.
26. Chen, D.F.; Scopelliti, R.; **Hu, X.L.***
[Fe]-Hydrogenase Models Featuring Acylmethylpyridinyl Ligands.
Angewandte Chemie International Edition **2010**, 49, 7512-7515.
25. Breitenfeld J.; Vechorkin, O.; Corminboeuf, C.; Scopelliti, R.; **Hu, X.L.***
Why Are (NN₂)Ni Pincer Complexes Active for Alkyl-Alkyl Coupling: β -H Elimination Is Kinetically Accessible but Thermodynamically Uphill.
Organometallics **2010**, 29, 3686-3689.
24. Vechorkin, O.; Hirt, N.; **Hu, X.L.***
Carbon Dioxide as the C1 Source for Direct C—H Functionalization of Aromatic Heterocycles.
Organic Letters **2010**, 12, 3567-3569.
23. **Hu, X.L.***
Cross Coupling of Non-Activated Alkyl Halides by a Nickel Pincer Complex.
Chimia **2010**, 64, 231-234.
22. Vechorkin, O.; Proust, V.; **Hu, X.L.***
The Nickel/Copper-Catalyzed Direct Alkylation of Heterocyclic C—H Bonds.
Angewandte Chemie International Edition **2010**, 49, 3061-3064.
21. Chen, D.F.; Scopelliti, R.; **Hu, X.L.***
Synthesis and Reactivity of Iron Acyl Complexes Modeling the Active Site of [Fe]-Hydrogenase.
Journal of the American Chemical Society **2010**, 132, 728-729.
20. Vechorkin, O.; Barmaz, D.; Proust, V.; **Hu, X.L.***
Ni-Catalyzed Sonogashira Coupling of Non-activated Alkyl Halides: Orthogonal Functionalization of Alkyl Iodides, Bromides, and Chlorides.
Journal of the American Chemical Society **2009**, 131, 12078-12079.
19. Vechorkin, O.; Proust, V.; **Hu, X.L.***
Functional Group Tolerant Kumada-Corriu-Tamao Coupling of Non-activated Alkyl Halides with Aryl and Heteroaryl Nucleophiles: Catalysis by a Nickel Pincer Complex Permits the Coupling of Functionalized Grignard Reagents.
Journal of the American Chemical Society **2009**, 131, 9756-9766.

18. Hatay, I.; Su, B.; Li, F.; Partovi-Nia, R.; Vrabel, H.; **Hu, X.L.**; Ersoz, M.; Girault, H.H.* Hydrogen Evolution at Liquid-Liquid Interfaces.
Angewandte Chemie International Edition **2009**, *48*, 5139-5142.
17. Obrist, B.V.; Chen, D.F.; Ahrens, A.; Schünemann, V.; Scopelliti, R.; **Hu, X.L.***
An Iron Carbonyl Pyridonate Complex Related to the Active Site of the [Fe]-Hydrogenase (Hmd).
Inorganic Chemistry **2009**, *48*, 3514-3516.
16. Vechorkin, O.; **Hu, X.L.***
Ni-Catalyzed Cross Coupling of Non-Activated and Functionalized Alkyl Halides with Alkyl Grignards.
Angewandte Chemie International Edition **2009**, *48*, 2937-2940.
15. Vechorkin, O.; Csok, Z.; Scopelliti, R.; **Hu, X.L.***
Nickel Complexes of a Pincer Amidobis(amine) Ligand: Synthesis, Structure, and Activity in Stoichiometric and Catalytic C-C Bond Forming Reactions of Alkyl Halides.
Chemistry, A European Journal **2009**, *15*, 3889-3899.
14. Csok, Z.; Vechorkin, O.; Harkins, S.B.; Scopelliti, R.; **Hu, X.L.***
Nickel Complexes of a Pincer NN₂ Ligand: Multiple Carbon-Chloride Activation of CH₂Cl₂ and CHCl₃ Leads to Selective Carbon-Carbon Bond Formation.
Journal of the American Chemical Society **2008**, *130*, 8156-8157.

Postdoc and PhD work

13. **Hu, X.L.**; Brunschwig, B.S.; Peters, J.C.*
Electrocatalytic Hydrogen Evolution at Low Overpotentials by Cobalt Macrocyclic Glyoxime and Tetraimine Complexes.
Journal of the American Chemical Society **2007**, *129*, 8988-8998.
12. **Hu, X.L.**; Cossairt, B.M.; Brunschwig, B.S.; Lewis, N.S.*; Peters, J.C.*
Electrocatalytic Hydrogen Evolution by Cobalt Difluoroboryldiglyoximate Complexes,
Chemical Communications **2005**, 4723-4725.
11. **Hu, X.L.**; Meyer, K.*
Tripodal Carbene Chelators for Small Molecule Activation
Journal of Organometallic Chemistry **2005**, *690*, 5474-5484.
10. **Hu, X.L.**; Meyer, K.*
Terminal Cobalt(III) Imido Complexes Supported by Tris(Carbene) Ligands: Imido Insertion into the Cobalt—Carbene Bond
Journal of the American Chemical Society **2004**, *126*, 16322-16323.
9. **Hu, X.L.**; Castro-Rodriguez, I.; Meyer, K.*
Dioxygen Activation by a Low-Valent Cobalt Complex with a Flexible Tripodal N-Heterocyclic Carbene Ligand
Journal of the American Chemical Society **2004**, *126*, 13464-13473.
8. **Hu, X.L.**; Castro-Rodriguez, I.; Meyer, K.*
Synthesis and Characterization of Electron-Rich Nickel Tris-Carbene Complexes
Chemical Communications **2004**, 2164-2165.
7. **Hu, X.L.**; Castro-Rodriguez, I.; Olsen, K.; Meyer, K.*
Group 11 Metal Complexes of N-Heterocyclic Carbene Ligands: Nature of the Metal—Carbene Bond
Organometallics **2004**, *23*, 755-764.

6. Basuli, F.; Kilgore, U.; **Hu, X.L.**; Meyer, K.; Pink, M.; Huffman, J. C.; Mindiola, D. J.* Cationic and Neutral Four-Coordinate Alkylidene Complexes of Vanadium(IV) Containing Short V=C Bonds
Angewandte Chemie International Edition **2004**, 43, 3156-3159.
5. Nakai, H.; **Hu, X.L.**; Zakharov, L. N.; Rheingold, A.; Meyer, K.*
Synthesis and Characterization of N-Heterocyclic Carbene Complexes of Uranium(III)
Inorganic Chemistry **2004**, 43, 855-857.
4. **Hu, X.L.**; Castro-Rodriguez, I.; Meyer, K.*
Copper Complexes of Nitrogen-Anchored Tripodal N-Heterocyclic Carbene Ligands
Journal of the American Chemical Society **2003**, 125, 12237-12245.
3. **Hu, X.L.**; Castro-Rodriguez, I.; Meyer, K.*
A Bis-Carbenealkenyl Copper(I) Complex From a Tripodal Carbene Ligand *Organometallics* **2003**, 22, 3016-3018.
2. **Hu, X.L.**; Tang, Y.-J.; Gantzel, P.; Meyer, K.*
Silver Complexes of a Novel Tripodal N-Heterocyclic Carbene Ligand: Evidence for Significant Metal—Carbene π -Interaction
Organometallics **2003**, 22, 612-614.
1. **Hu, X.L.**; Meyer, K.*
Identification of Iron Cyclam Complexes Encapsulated Inside Zeolite Y
Inorganica Chimica Acta **2002**, 337, 53-58.

Patents and patent applications.

1. Granted patents.

01. **Hu, X.L.**; Song, F.; Petkucheva E.
Method of synthesis of OER catalyst
Granted in US (US Patent No 10,907,263; 2021), EU (EP3512985; 2021), and China (CN109790633B; 2021)

2. Patent applications.

08. Ma, W.C.; **Hu, X.L.**
Encapsulated alloy catalysts and their methods of preparation
(2023) EP 23 185 650.1
07. Serban, A.; **Hu, X.L.**
Nickel molybdenum catalysts and their methods of preparation
(2023) EP 23172741.3.
06. Prange, C.; **Hu, X.L.**; Li, T.; Ben Sayed, N.
6-Diazo-5-oxo-L-norleucine prodrugs
(2022) EP 22205127.8.
05. Wu, X.Y.; **Hu, X.L.**; Chen, N.J.
Fluorinated polyaromatics with linear, branched or crosslinked structure for anion exchange membranes and ionomers
(2022) EP22205637.6
04. Wu, X.Y.; **Hu, X.L.**;
Aryl-ether-free polyaromatic polymers with branched structures for anion exchange membranes
(2021) PCT/EP21202547.2
03. **Hu, X.L.**; Gu, J.
Fe-N-C Catalyst, method of preparation and uses thereof
(2018) PCT/ EP18156529.2
02. **Hu, X.L.**; Song, F.
New catalysts for oxygen evolution reaction
(2016) EP16180605.4
01. **Hu, X.L.**; Merki, D.
Amorphous transition metal sulphide films or solids as efficient electrocatalysts for hydrogen production from water or aqueous solutions
(2010) EP10160119.3