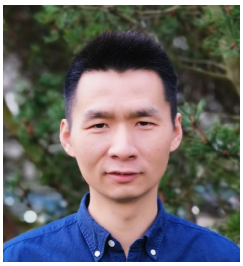
Yang Hu
Associate Professor
Department of Energy Conversion and Storage
Electrochemical Materials
Type of address: Postal address.
Fysikvej
310, 340
2800
Kgs. Lyngby
Denmark
Email: yanhu@dtu.dk
Mobile: 52651275
Web address: http://energy.dtu.dk



Employment

Associate Professor
Department of Energy Conversion and Storage
Technical University of Denmark
Kgs. Lyngby, Denmark
1 Nov 2020 → present

Electrochemical Materials
Technical University of Denmark
Kgs. Lyngby, Denmark
10 Jan 2024 → present

Research outputs

Electrochemical alcohol oxidation reaction on Precious-Metal-Free catalysts: Mechanism, activity, and selectivity
Shi, J., Ma, J., Ma, E., Li, J., Hu, Y., Fan, L. & Cai, W., 2024, In: Carbon Neutralization. 3, 2, p. 285-312 28 p.

Regulating the Band Structure of Ni Active Sites in Few-Layered Nife-LDH by In Situ Adsorbed Borate for Ampere-Level Oxygen Evolution
Zhou, S., He, H., Li, J., Ye, Z., Liu, Z., Shi, J., Hu, Y. & Cai, W., 2024, In: Advanced Functional Materials. 34, 12, 2313770.

Ni dispersed ultrathin carbon nanosheets as bi-functional oxygen electrocatalyst induced from graphite-like porous supramolecule
Zhou, S., Zheng, G., Ji, F., Wang, J., Liu, Z., shi, J., Li, J., Hu, Y., Deng, C., Fan, L. & Cai, W., 2023, In: Journal of Colloid and Interface Science. 652, p. 1578-1587 10 p.

Regulating the N Coordination Environment of Co Single-Atom Nanozymes for Highly Efficient Oxidase Mimics
Li, Z., Liu, F., Chen, C., Jiang, Y., Ni, P., Song, N., Hu, Y., Xi, S., Liang, M. & Lu, Y., 2023, In: Nano Letters. 23, 4, p. 1505-1513 9 p.

Unveiling the nucleation and evolution of twinned intermetallic nanocrystals for CO-tolerant selective hydrogenation
Wang, K., Liu, H., Zhang, L., Yu, B., Hu, Y. & Yang, F., 2023, In: Inorganic Chemistry Frontiers. 10, 3, p. 1027-1036 10 p.

***In situ* Synthesis of Pt-rare Earth Alloy Nanoparticles**
Liu, P., Hu, Y. & Hansen, T. W., 2021, In: Microscopy and Microanalysis. 27, S2, p. 97-98

Mechanistic Insights into the Synthesis of Platinum-Rare Earth Metal Nanoalloys by a Solid-State Chemical Route
Hu, Y., Jensen, J. O., Norby, P., Cleemann, L. N., Yang, F. & Li, Q., 2021, In: Chemistry of Materials. 33, 2, p. 535-546

Revealing the genuine stability of the reference Pt/C electrocatalyst toward the ORR
Hu, Y., Jensen, J. O., Bretzler, P., Cleemann, L. N., Yu, J. & Li, Q., 2021, In: Electrochimica Acta. 391, 10 p., 138963.

Process for producing metal alloy nanoparticles
Li, Q., Brandes, B. A., Jensen, J. O., Cleeman, L. N. & Hu, Y., 2 Apr 2020, IPC No. H01M 8/ 00 A I, Patent No. WO2020065053, 27 Sept 2019, Priority date 28 Sept 2018, Priority No. EP20180197633

Polybenzimidazole-Based High-Temperature Polymer Electrolyte Membrane Fuel Cells: New Insights and Recent Progress
Aili, D., Henkensmeier, D., Martin Fernandez, S., Singh, B., Hu, Y., Jensen, J. O., Cleemann, L. N. & Li, Q., 2020, In: Electrochemical Energy Reviews. 3, p. 793–845

Synthesis of Pt-Rare Earth Metal Nanoalloys
Hu, Y., Jensen, J. O., Cleemann, L. N., Brandes, B. A. & Li, Q., 2020, In: Journal of the American Chemical Society. 142, 2, p. 953-961

Catalyst evaluation for oxygen reduction reaction in concentrated phosphoric acid at elevated temperatures
Hu, Y., Jiang, Y., Jensen, J. O., Cleemann, L. N. & Li, Q., 2018, In: Journal of Power Sources. 375, p. 77-81

Immunity of the Fe-N-C catalysts to electrolyte adsorption: phosphate but not perchloric anions
Hu, Y., Jensen, J. O., Pan, C., Cleemann, L. N., Shypunov, I. & Li, Q., 2018, In: Applied Catalysis B: Environmental. 234, p. 357-364

^{57}Fe-Mössbauer spectroscopy and electrochemical activities of graphitic layer encapsulated iron electrocatalysts for the oxygen reduction reaction
Zhong, L., Frandsen, C., Mørup, S., Hu, Y., Pan, C., Cleemann, L. N., Jensen, J. O. & Li, Q., 2018, In: Applied Catalysis B: Environmental. 221, p. 406-412 7 p.

The quest for simple and scalable routes to synthesizing nanoalloy catalysts
Hu, Y., Jensen, J. O., Cleemann, L. N., Brandes, B. A. & Li, Q., 2018, *Sustain Conference 2018: Creating Technology for a Sustainable Society.* Melero, C. & Mølhave, K. (eds.). Lyngby, Denmark: Technical University of Denmark, 1 p. C-3

Encapsulated iron-based oxygen reduction electrocatalysts by high pressure pyrolysis
Zhong, L., Hu, Y., Cleemann, L. N., Pan, C., Svaerke, J., Jensen, J. O. & Li, Q., 2017, In: International Journal of Hydrogen Energy. 42, 36, p. 22887-22896

A platinum-free oxygen reduction catalyst by a one-step pyrolysis process
Jensen, J. O., Hu, Y., Zhong, L., Pan, C., Cleemann, L. N. & Li, Q., 2016. 1 p.

Approaches to a platinum free oxygen reduction catalyst for PEM fuel cells
Jensen, J. O., Hu, Y., Zhong, L., Pan, C., Cleemann, L. N. & Li, Q., 2016. 1 p.

Can We Replace Platinum Metals in PEM Fuel Cells and Electrolyzers?
Jensen, J. O., Hu, Y., Zhong, L., Pan, C., Cleemann, L. N. & Li, Q., 2016. 1 p.

Challenges in Membrane Electrode Assembly Technologies
Jensen, J. O., Hu, Y., Zhong, L., Cleemann, L. N. & Li, Q., 2016. 1 p.

Fuel Cells and Electrolyzers. Recent Progress at DTU Energy and the Role in a Sustainable Society
Jensen, J. O., Hu, Y., Aili, D., Zhong, L., Cleemann, L. N. & Li, Q., 2016. 1 p.

Graphene layer encapsulated metal nanoparticles as a new type of non-precious metal catalysts for oxygen reduction
Hu, Y., Zhong, L., Jensen, J. O. & Li, Q., 2016, In: Asia-Pacific Journal of Chemical Engineering. 11, 3, p. 382-385 4 p.

Non-Platinum Oxygen Reduction Catalysts. From Crystalline to Molecular Moieties
Jensen, J. O., Hu, Y., Zhong, L., Pan, C., Cleemann, L. N. & Li, Q., 2016. 1 p.

Platinum Iron Intermetallic Nanoparticles Supported on Carbon Formed In Situ by High-Pressure Pyrolysis for Efficient Oxygen Reduction
Hu, Y., Jensen, J. O., Zhang, W., Cleemann, L. N., Pan, C. & Li, Q., 2016, In: ChemCatChem. 8, 19, p. 3131-3136 6 p.

Probing the active site structures of iron-based ORR catalysts
Hu, Y., Li, Q., Jensen, J. O., Zhong, L. & Cleemann, L. N., 2016, In: Electrochemical Society. Meeting Abstracts (Online). MA2016-02, 2771.

Carbon Thin-layer Encapsulated Fe-N-C as Active Catalysts for Oxygen Reduction
Zhong, L., Pan, C., Hu, Y., Cleemann, L. N., Jensen, J. O. & Li, Q., 2015. 1 p.

Fe_3C-based oxygen reduction catalysts: synthesis, hollow spherical structures and applications in fuel cells
Hu, Y., Jensen, J. O., Zhang, W., Fernandez, S. M., Chenitz, R., Pan, C., Xing, W., Bjerrum, N. J. & Li, Q., 2015, In: Journal of Materials Chemistry A. 3, p. 1752-1760

Non-Noble Oxygen Reduction Catalysts
Jensen, J. O., Hu, Y., Zhong, L., Pan, C., Cleemann, L. N. & Li, Q., 2015. 1 p.

Non-Noble Oxygen Reduction Catalysts by Means of Encapsulated Iron Carbide
Jensen, J. O., Hu, Y., Zhong, L., Pan, C., Cleemann, L. N. & Li, Q., 2015. 1 p.

Promotional effect of phosphorus doping on the activity of the Fe-N/C catalyst for the oxygen reduction reaction
Hu, Y., Zhu, J., Lv, Q., Liu, C., Li, Q. & Xing, W., 2015, In: Electrochimica Acta. 155, p. 335-340 6 p.

Theoretical understanding about the interaction between iron carbide and graphitic layers towards oxygen reduction
Hu, Y., Li, Q., Jensen, J. O., Pan, C., Cleemann, L. N. & Zhong, L., 2015. 1 p.

Direct Synthesis of Fe3C-Functionalized Graphene by High Temperature Autoclave Pyrolysis for Oxygen Reduction
Hu, Y., Jensen, J. O., Zhang, W., Huang, Y., Cleemann, L. N., Xing, W., Bjerrum, N. J. & Li, Q., 2014, In: ChemSusChem (Print). 7, 8, p. 2099-2103 5 p.

Hollow Spheres of Iron Carbide Nanoparticles Encased in Graphitic Layers as Oxygen Reduction Catalysts
Hu, Y., Jensen, J. O., Zhang, W., Cleemann, L. N., Xing, W., Bjerrum, N. J. & Li, Q., 2014, In: Angewandte Chemie. 126, 14, p. 3749-3753

Hollow Spheres of Iron Carbide Nanoparticles Encased in Graphitic Layers as Oxygen Reduction Catalysts
Hu, Y., Jensen, J. O., Zhang, W., Cleemann, L. N., Xing, W., Bjerrum, N. J. & Li, Q., 2014, In: Angewandte Chemie International Edition. 53, 14, p. 3675 –3679

Synthesis of self-supported non-precious metal catalysts for oxygen reduction reaction with preserved nanostructures from the polyaniline nanofiber precursor
Hu, Y., Zhao, X., Huang, Y., Li, Q., Bjerrum, N. J., Liu, C. & Xing, W., 2013, In: Journal of Power Sources. 225, p. 129-136

Activities

Synthesis of Pt-Rare Earth Metal Nanoalloys
Yang Hu (Speaker)
Oct 2019

Evaluation of ORR catalysts in concentrated phosphoric acid at high temperatures
Yang Hu (Speaker)
2017

PRiME 2016/230th ECS Meeting
Yang Hu (Speaker)
6 Oct 2016

65th Lindau Nobel Laureate Meeting
Yang Hu (Lecturer)
2015

Annual Meeting of the Danish Electrochemical Society 2015
Yang Hu (Speaker)
2015

Projects

Advanced alloy catalysts for fuel cells
Hu, Y.
01/01/2019 → 30/06/2019

Atomic Scale Modeling of Catalysts for Electrochemical Production of Hydrogen Peroxide
Gleeson, R., Hansen, H. A. & Hu, Y.
15/01/2024 → 14/01/2027

Atomic Scale Modelling of Catalysts for the Oxygen Evolution Reaction
Nissen, M. S., Hansen, H. A. & Hu, Y.
15/09/2023 → 14/09/2026

Bimetallic alloy nanoparticles from best samples to versatility demonstration
Hu, Y.
01/01/2020 → 31/12/2020

Electrocatalyst Development for High-TemperaturePolymer Electrolyte Membrane Fuel cells
Seidl, L. M., Hu, Y. & Li, Q.
01/08/2023 → 31/07/2026

Electrocatalyst Development for Polymer Electrolyte Membrane Electrolyzers Aided by In-operando Characterization
Swane, A. A. D., Hu, Y., Chatzichristodoulou, C. & Hansen, H. A.
01/08/2023 → 31/07/2026

Electrocatalyst Development for Polymer Electrolyte Membrane Electrolyzers Aided by In-operando Characterization
Giarola, G., Hu, Y., Chatzichristodoulou, C. & Hansen, H. A.
01/04/2024 → 31/03/2027

Pt-rare earth alloy catalysts for oxygen reduction
Hu, Y.
01/06/2018 → 31/12/2018

Synthesis and Characterization of Electrocatalysts for Low Temperature Fuel Cell and Water Electrolsyers
Zhou, Q., Li, Q., Cleemann, L. N., Hu, Y., Hansen, H. A., Stephens, I. & Ma Andersen, S.
01/03/2019 → 03/08/2022

Upscaling Catalyst Fabrication and Application: Incubation of Laboratory Curios to Competitive Fuel Cell Products
Hu, Y.
01/03/2015 → 31/08/2018