Kaile Jin

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EDUCATION

Stanford University, Stanford, California 09/2021-06/2023

Expected Degree: Master of Science in Material Science and Engineer Core Course GPA: 4.0/4.0

- Relevant Coursework: Defects and Disorder in Materials, Quantum Mechanics for Materials Science, Solid State Physics, Fundamentals of Materials Science and Engineering，Machine learning，Data structures and algorithms

China Jiliang University, Hangzhou, China 09/2016-06/2020

Degree: Bachelor of Science in Material Chemistry GPA: 3.92; Ranking: 1/54; TOEFL:100; GRE:320

- Zhejiang Provincial Government Scholarship 11/2019;11/2018
- The Second Prize, The 16th "Challenge Cup" Undergraduate Extracurricular Academic Science and Technology Works Competition of Zhejiang Province 05/2019
- First-class Scholarship for Academic Excellence 11/2018
- Research and Innovation Scholarship 11/2018
- The Honor of "Excellent Student Leader" 11/2018;11/2017

PATENT

Kaile Jin, Jingcai Xu, Xinqing Wang, Bo Hong, et al, **"A N-p Heterogeneous Gas-sensing Material and Its Preparation Method"**, Patent No. 201810818069 .3, October 2018

Kaile Jin, Jingcai Xu, Xinqing Wang, Bo Hong, et al, **"A N-p Heterogeneous Porous Spherical Gas-sensing Material and Its Preparation Method"**, Patent No. 201810821599.3, October 2018

PUBLICATION

Kaile Jin, Qiyue Wang, Luye Chen, Zixuan Lv, Jingcai Xu, Bo Hong, Xinqing Wang, et al, **"Zn_2SnO_4/Activated Carbon Composites for High Cycle Performance Supercapacitor Electrode"**, *Journal of Alloys and Compounds*, Pages 419-423, July 11th, 2018, ISSN: 0925-8388

K.L.Jin, X.J.Chen, J.C.Xu, X. Q. Wang, et al, **"Hard-templating Synthesis and Enhanced Photocatalysis of Mesoporous Titanium Dioxides Nanoparticles"**, *Functional Materials Letters*, Volume 11, July 4th, 2018, ISSN: 1793-6047

H.D. Chen, K.L. Jin, P.F. Wang, et al, **"High-valence Cations-doped Mesoporous Nickel Oxides Nanowires: Nanocasting Synthesis, Microstructures and Improved Gas-sensing Performance"**, *Sensors and Actuators B: Chemical*, Volume 296, October 1st, 2019, ISSN: 0925-4005

H.D. Chen, K.L. Jin, P.F. Wang, J.C. Xu, et al, **"Highly enhanced gas-sensing properties of indium-doped mesoporous hematite nanowires"**, *Journal of Physics and Chemistry of Solids*, Pages 271-278, May 8th, 2018, ISSN:0022-3697

Qiyue Wang, Kaile Jin, Zixuan Lv, et al, **"Synthesis and Pesudocapacitive Performance of Orderd Mesoporous $NiCo_2O_4$ Nanowires"**, *International Journal of Electrochemical Science*, Pages 11675-11683, November 5th, 2018, ISSN: 1452-3981

PROJECT

Data Science and Machine Learning Approaches in Chemical and Materials Engineering 03/2022-06/2022

- Techniques includes linear and nonlinear regression, clustering and logistic regression, dimensionality reduction, unsupervised learning, neural networks, and hidden Markov models are applied to a range of engineering problems, including conducting polymers, water purification membranes, battery materials, disease outcome prediction, genomic analysis, organic synthesis, and quality control in manufacturing.
- Git link: https://github.com/kkjin4/machine-learning-in-chemistry-and-materials-engineering

New York Taxi Tip Prediction | Data Management, Machine Learning 09/2021-12/2021

- Extract features from 50000+ of New York taxi trip datapoints in Google Cloud's public dataset utilizing SQL
- Produced visualizations with matplotlib to explore the correlation between various features and tip percentage
- Trained a logistic regression model and a boosted tree classifier to predict tips based on trip info
- Git link: https://github.com/kkjin4/New-York-Taxi-Fee-Prediction

Bunny World | Back-End, Object-Oriented Software Engineering, Android 12/2021-03/2022

- Collaborated with teammates to develop a simplified version of the game Myst using Java in Android Studio
- Enable game customization to let users create, edit, play and save their own games through SQLite
- Designed the back-end data structure for game logic like object interaction and event handling
- Git link: https://github.com/kkjin4/Bunny-world

Preparation and Performance Research of Ordered N-p Heterogeneous Gas-sensing Materials (Zhejiang College Student Science and Technology Innovation Program) *Team Leader* 01/2018-12/2018

- Synthesized mesoporous p-type nickel oxides nanowires (NiO NWs) and Li-, Zn-, Fe- and Sn-doped NiO NWs with the nanocasting method
- Investigated the crystal structure, components and morphology of NiO NWs by XRD, EDS and TEM. Measured the UV vis spectrum and nitrogen adsorption-desorption isotherms, performed the gas-sensing tests
- Reached the result that the high-valence donor-doping can further improve the ethanol gas response for NiO NWs sensors.
- Explored the underlying mechanism: the extra electrons from the high-valence Fe and Sn doping recombine with the holes, leading to the higher ground state resistance and thicker hole-accumulation layer in air
- Analyzed and arranged experimental data, published a paper and applied a patent

Zn2SO4/ Activated Carbon Composites for High Cycle Performance Supercapacitor Electrode 03/2018-08/2018

- Prepared a series of Zn_2SnO_4/AC composites by coprecipitation method
- Characterized the phase structure of Zn_2SnO_4/AC composites by an XRD diffractometer (DX2700 China).
- Mixed the Zn_2SnO_4/AC composites materials, conductive carbon black, 60% (W/W) PTFE emulsion and pressed the mixture into a supercapacitor electrode
- Used three-electrode mode with the electrode materials as a working electrode to measure the constant current charge-discharge and cycle life test of the obtained supercapacitor electrode materials
- Analyzed and arranged experimental data, published a SCI paper as the first author

Hard-templating Synthesis and Enhanced Photocatalysis of Mesoporous TiO2 **Nanoparticles** 09/2017-12/2017

- Synthesized TiO2 NPs using activated carbon (AC) as templates, repeated the synthetic procedures to increase the TiO2 content, marked the samples as 2-TiO2, 3-TiO2 and 4-TiO2.
- Characterized the phase structures of TiO_2/AC nanocomposites and mesoporous TiO_2 NPs by XRD, analyzed the morphology of samples by SEM, carried out the BET surface area, pore diameter and pore volume by a surface analyzer, measured the MB concentration before/after the photocatalysis by Spectrophotometer.
- Reached the result that the surface area of mesoporous TiO2 NPs decreased with the TiO2 content, the photocatalytic decomposition efficiency increased up to 92%, and then decreased which should be attributed to the synergistic effect from the MB adsorption of mesoporous-structure and the photocatalysis of TiO2 NPs.
- Analyzed and arranged experimental data, published a SCI paper as the first author

Gas-sensing Performance of In-doped α-Fe_2O_3 Nanowires 07/2018-01/2019

- Mesoporous indium (In)-doped hematite (α-Fe2O3) nanowires were synthesized with mesoporous SBA-15 silica as a hard template
- Determined the crystal structure of prepared products by XRD, examined the morphology of all samples by TEM and energy-dispersive spectroscopy.
- Obtained the UV vis spectrum with $BaSO_4$ powder as the substrate, then deduce the bandgap of both samples.
- Conducted the Nitrogen physisorption to calculate the surface area.
- Analyzed and arranged experimental data, published a SCI paper as the second author

Preparation of A Ternary Composite Electrode Material 01/2019-12/2019

- Prepared ordered mesoporous $NiCo_2O_4$ nanowires electrodes using SBA-15 as template by a hydrothermal impregnation method
- Characterized the structure and morphology of the SBA-15 and $NiCo_2O_4$ by X-ray diffraction, nitrogen adsorption-desorption and transmission electron microscopy.
- Researched the electrochemical performance of the ordered mesoporous $NiCo_2O_4$ electrode material
  Arranged and analyzed experimental data, published a paper and applied a patent

INTERNSHIP

Hangzhou Huayu Environmental Engineering Co., Ltd. 07/2018-08/2019

Environmental Material Experimenter

- Prepared large aperture activated carbon materials and tested their adsorption properties
- Prepared mesoporous TiO_2 nanoparticles, tested the efficiency of photocatalytic decomposition of methylene blue, and used the prepared samples to decompose pollutants in wastewater

SKILLS

Software: Java /Python /Matlab/ PowerBI /Tableau/ Excel /PPT/ PS/LR/Word/ Origin