

QINGYING JIA

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BACKGROUND

PhD degree in Electrochemistry, Materials Science with strong background in fuel cell and nanomaterial catalysts backed with substantial previous experience in the relevant field. Demonstrated hands-on experience and sound working knowledge in x-ray and electrochemical techniques and instrumentation. Years of industrial experience in fuel cells and membrane exchange assembly development and nanomaterial preparation/synthesis.

PROFESSIONAL QUALIFICATIONS

X-ray Crystallography, X-ray Absorption Spectroscopy, X-ray Diffraction, X-ray Photoelectron Spectroscopy, Electrochemical Impedance Spectroscopy, Fuel Cell development and test, Membrane Exchange Assembly design, Novel nano-materials preparation and characterization, Electrochemical system modeling and simulation.

EDUCATION

Northeastern University, Boston, MA	Postdoctoral,	2010-present
Illinois Institute of Technology, Chicago, IL	Ph.D., Material Science GPA: 4.0/4.0	2005-2010
Bristol University, Bristol, UK	Graduate of science Program: Particle Physics	2003-2005
Peking University, Beijing, China	M.S., High Energy Physics GPA: 3.5/4.0	2000-2003
Peking University, Beijing, China	B.S., Nuclear Physics GPA: 3.3/4.0	1996-2000

WORK EXPERIENCE

Research Assistant Illinois Institute of Technology, Argonne National Laboratory Aug. 06 - Present

PURPOSE: Design and develop commercial fuel cell system and nano-scale catalysts as next-generation energy storage products. Identify novel nanomaterial structures and electronic properties with improved performance, greater reliability, and lower cost with in-situ x-ray Absorption Spectroscopy and other chemical techniques.

- **Industrial Experience** (in cooperation with the fuel cell company NuVant System Inc.):
New generation commercial Proton Membrane Exchange fuel cell systems have been developed to meet both commercial and research requirements. Significant improvements in both performance and physical appearance have been accomplished. The new fuel cell systems have wider applications both industrially and experimentally. The new designed fuel cell systems have been on market. In this project, I involved in commercial fuel cells design, development, operation, and performance testing with various physical and electrochemical techniques. In addition, I had hands-on experience in membrane exchange assembly design and preparation, nano-scale catalysts preparation/synthesis.
- **Laboratory Experience** (experiments execution, data analysis and theoretical modeling):
In-situ x-ray absorption spectroscopy of electrocatalysts in fuel cell devices: data collection and process.
Chemical Reactions investigation with in situ time- and potential-dependent spectroscopy rapid scans.
Characterization of physical structure and electronic properties of nanomaterials: data analysis and fitting.
Identification of electrocatalysis enhancement mechanism of binary alloys in comparison with pure Pt: electrochemical modeling and simulation.
Theoretical calculations of x-ray absorption near edge spectra (FEFF8 code)
Development of nanostructure/ reactivity relationships to identify reactivity trends within binary alloys.
Propose and develop novel and improved nanomaterials, process, and technologies for commercial fuel cells.
Customization and upgrade of x-ray instruments and experiment automation.

MEMBERSHIP in HONORARY/PROFESSIONAL SOCIETIES

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