

EDUCATION BACKGROUND



Swiss Federal Institute of Technology in Zurich (ETH, top 20) Zurich, Switzerland

- Ph.D Candidate in X-ray Imaging/Fuel Cell, GPA 5.0/6.0 12/2016 - 06/2020^(Est.)
- Project: *Sub-second dynamics of liquid water transport in polymer electrolyte fuel cells revealed by 4D X-ray Tomographic Microscopy*. Funded by SNF [No. 166064]
- Advisor: Prof. Thomas J. Schmidt^(ETH/PSI); Co-examiner: Dr. Felix N. Büchi^(PSI), Dr. Jens Eller^(PSI)

Technical University of Munich (TUM, top 60) Munich, Germany

- M.Sc in Materials Science, jointly with LMU Munich, GPA 1.5/1.0 09/2015 - 09/2016
- Maîtrise in Physics, Uni. of Rennes 1, France (EU-Mobility), 15.6/20 09/2014 - 06/2015
- Advisor: Prof. Peter Müller-Buschbaum^(TUM); Co-examiner: Prof. Wolfgang Schmahl^(LMU)

Beijing Jiaotong University (BJTU, 211 project) Beijing, China

- B.Sc in Materials Chemistry, GPA 90/100 (major) 09/2009 - 06/2013
- Innovation Scholarship (top 5%); Learning Scholarship (3 years); 3 Patents issued (2012)
- Advisor: Prof. Hui Zhang (BJTU)

PROFESSIONAL EXPERIENCE

Paul Scherrer Institute (PSI, ETH domain) Villigen, Switzerland

- Doctoral Researcher, Fuel Cell Systems and Diagnostics Group (FCSD) 12/2016 - 06/2020^(Est.)
- Project: *Sub-second dynamics of liquid water transport in polymer electrolyte fuel cells revealed by 4D X-ray Tomographic Microscopy*. [SNF No. 166064]
- Synchrotron X-ray Tomographic Imaging with High Spatial (2-3 μ m) and Temporal (0.1~1 s) Resolution at TOMCAT beamline at Swiss Light Source (SLS).

Toyota Motor Europe (TME) Brussels, Belgium

Research Collaborator, Fuel Cell XTM imaging at SLS 05/2017 - 02/2019^(Est.)

Technical University of Munich (TUM) Munich, Germany

- Student Research Assistant, Lab of Funct. Mater., Physics Depart. 10/2015 - 09/2016
- Nanostructured Cobalt Oxides/P(S-b-NIPAM) Composites for Sensor Applications".
- Characterized the morphology, structure and magnetic properties of structuremetal polymer composites using AFM, TEM, XPS, GISAXS, SAXS and SQUID techniques

Infineon Technologies AG (INFINEON) Munich, Germany

- Working Student, Failure Analysis 12/2015 - 06/2016
- Failure Analysis of thermal and electrical stressed Infineon chips with temperature from -40 to 125 Celsius degrees and time from 0 to 10,000 hours
- Statistically analysed the electronic behaviours of stressed Infineon chips for optimization, then summarized and reported them to supervisor

École des Ponts ParisTech (ENPC) Paris, France

Modelling Trainee, Lab of Water, Environ. & Urban System (LEESU) 08/2015 - 09/2015

- Trained on the cyanobacteria matlab modelling system developed by LEESU and aimed to apply it into controlling system of lakes and rivers in China.
- Calibrated parameters in the specific models by using local meteorological data and predicted the cyanobacterial blooms for Yuqiao reservoir in Tianjin, China.

- Designed mechanical configuration of the test-stand for the split and delay line (SDL) of European XFEL with technical requirements consideration under ultra-high vacuum.
- Assembled the test-stand for SDL and tested its vacuum degree, furthermore fabricated Lemo cables and tested the parasitic motion of linear translation stage based on python.

PUBLICATIONS

Academic Papers

- **H. Xu**, M. Bühner, F. Marone, Prof. T. J. Schmidt, F. N. Büchi, J. Eller. *Fighting the Noise: Towards the Limits of Subsecond X-ray Tomographic Microscopy of PEFC* [J]. ECS Trans. 80(8), 395-402 (2017).
- Prof. H. Zhang, **H. Xu**, Jinxiu Wan, Luting Yan, Chunai Dai. *Preparations of New Porous Oxides Spherical Powers by Spray Reaction Technique* [J]. Vacuum & Cryogenics (Chinese Ver.). 18(3), 134-141 (2012).
- X. Qi, **H. Xu**, X. Zhou. *Degradation of Highly Active Cypermethrin via Ultrasonic Irradiation Combined with Photocatalysis by Titanium Dioxide* [J]. Chem. Res. (Chinese Ver.). 23(3), 45-49 (2012).

National Patents [China]

- Prof. M. Fu, H. Zhang, H. Xu, L. Yan. Annular gas-liquid interface jiggling magnetic separation device [P]. Chinese Patent Grant: CN102441489A (2013), National Patent Bureau, Beijing, China.
- Prof. H. Zhang, **H. Xu**, M. Fu, L. Yan. *Gas-liquid interface jiggling magnetic separation controllable annular device capable of continuously operating* [P]. Chinese Patent Grant: CN102441490B (2013), National Patent Bureau, Beijing, China.
- X. Zhou, **H. Xu**, Prof. H. Jiang, X. Qi. *Ultrasonic-photocatalytic oxidation coupled fruit and vegetable cleaning device* [P]. Chinese Patent Grant: CN202311136U (2012), National Patent Bureau, Beijing, China.

Dissertations

- **H. Xu**, *Structure and Properties of Thermoresponsive Diblock Copolymers Embedded with Metal Oxide Nanoparticles* [D]. Master Thesis. LMU&TUM, Munich, Germany (2016).
- **H. Xu**, *Application of Mesoporous SnO₂ Materials in Dye-sensitized Solar Cells and Lithium Batteries. (Chinese Ver.)* [D]. Bachelor Thesis. BJTU. Beijing, China (2013).

Technical Reports

- H. Xu, *Modelling of Cyanobacteria Dynamics for YuQiao Reservoir in Tianjin, China* [R]. Training Report. École des Ponts ParisTech. Paris, France (2016).
- H. Xu, *Design and Construction of the Test-Stand for Split and Delay Line* [R]. Tech. Report. European XFEL. Hamburg, Germany (2015).

CONFERENCES
AND TALKS

Meetings & Talks

- **H. Xu**, M. Bühner, F. Marone, Prof. T. J. Schmidt, F. N. Büchi, J. Eller. *Advancements in 10Hz operando X-ray tomographic imaging of liquid water in gas diffusion layers in PEFCs* [A]. 8th International Conference on Fundamentals and Development of Fuel Cells. Nantes, France (2019).
- **H. Xu**, M. Bühner, F. Marone, Prof. T. J. Schmidt, F. N. Büchi, J. Eller. *Quantification of Feature Detectability for Sub-second X-ray Tomographic Microscopy of PEFC* [A]. 6th European PEFC & Electrolyser Forum. Lucerne, Switzerland (2017).
- **H. Xu**, P. Müller-Buschbaum, E. Metwalli. *Structure and properties of thermoresponsive diblock copolymers embedded with metal oxide nanoparticles* [A]. MaMaSELF Program Status Meeting. Rigi Kulm, Switzerland (2016).

Meetings & Posters

- **H. Xu**, *Quantification of GDL water feature detectability for operando subsecond X-ray tomographic microscopy imaging of PEFCs* [A]. 69th Annual Meeting of the International Society of Electrochemistry. Bologna, Italy (2018).

- **H. Xu**, *Studies of Water Distribution in the Gas Diffusion Layer of Polymer Electrolyte Fuel Cells using X-ray Tomographic Microscopy* [A]. 15th Symposium on Modelling and Experimental Validation. Aarau, Switzerland (2018). **Poster Prize Award.**

- **H. Xu**, *Signal to Noise Ratio Evaluation for X-ray Computed Tomographic Imaging of Water in PEFCs* [A]. 14th Symposium on Modelling and Experimental Validation. Karlsruhe, Germany (2017).

TEACHING AND SCHOOL

Tutorials

- **529-0191-01L Renewable Energy Technology II, Energy Storage and Conversion (RET II).**
- 2018 Spring, Teaching Assistant, Master Course. Prof. T. J. Schmidt, ETH Zürich.
- 2017 Spring, Teaching Assistant, Master Course. Prof. T. J. Schmidt, ETH Zürich.

Summer School

- EXCITE Summer School on Biomedical Imaging. Organized by ETH Zürich & University Hospital, Zurich, Switzerland (2017).
- MaMaSELF Summer School on X-ray and Neutron Scattering. by University of Montpellier, Montpellier, France (2015).

HONORS AND AWARDS

International

- 2018 Poster Prize Award, *ModVal 2018 Conference Committee, Aarau, Switzerland.*
- 2015 Erasmus+ Scholarship, *European Education & Culture Executive Agency.*
- 2012 Finalist in TECO Green Tech Contest, *TECO Foundation, Taipei, ROC (Taiwan).*

Domestic (CN)

- 2012 Bronze in 8th CHALLENGE CUP Business Plan Competition, *Ministry of Edu. of China.*
- 2012 Innovation Scholarship, *Beijing Jiaotong Univeristy Beijing, China.*
- 2010 Learning Scholarship (for 3 years), *Beijing Jiaotong Univeristy, Beijing, China.*
- 2010 Excellent Member of Student Union, *Beijing Jiaotong Univeristy, Beijing, China.*
- 2010 Advanced Individual of Social Practice, *Beijing Jiaotong Univeristy, Beijing, China.*

TECHNICAL SKILLS

Programming & Softwares

- Python for image processing, parallel programming; Matlab for modelling; Labview for GUI.
- 3DSlicer; ImageJ; LaTeX; Mathematica; Inventor; AutoCAD; SQL; Adobe PS, PR, AE

LANGUAGES AND HOBBIES

- English (fluent, C1), Chinese (native, C2)
- German (basic, A2), French (basic, A2)
- Photography, Jogging, Table Tennis, Chinese Cuisines

EU Standard

SIGNATURE
Xu, Hong (徐泓)

