

# Dr. Jing-Mei Li 李璟玫 博士

Richard-Wagner-Str. 38, 53115 Bonn, Germany  
E-mail: jmli@uni-bonn.de

## PROFESSIONAL EXPERIENCE

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**Postdoc Researcher and Software Engineer** University Hospital Bonn, Germany, 3/2022-now

- Developing GestaltMatcher Database, a medical imaging database for rare disorders.
- Developing next-generation phenotyping approaches for diagnosing patients with rare disorders.
- Analyzing exome sequencing data to prioritize variants for diagnosing patients with rare disorders.

**Visiting Scholar** Ohio State University, United States, 09/2017-08/2018

- Synthesis of CuLaO<sub>2</sub> delafossite as cathode material for low-temp solid oxide fuel cell (SOFC)
- Developing catalysts for oxidative dihydrogen application to transform methane into higher value chemicals or liquid chemical which can be stored in an easier manner
- Designed a device to test materials' ionic conductivity for SOFC
- Discovering Mg-doping helped CuLaO<sub>2</sub> electrocatalytic activity by anodic onset-potential shift of 60 mV in oxygen reduction reaction (ORR)

**Postdoc Researcher** National Chiao Tung University, Taiwan, 08/2015-08/2017

- Synthesis of Z-scheme photoanode and photocathode for water splitting and CO<sub>2</sub> reduction to turn the sustained but intermittent solar energy into chemicals which can provide energy at night time
- Three publications, two papers under review and one manuscript submitted

**General Foreman** R&D department, China Steel Chemical Corporation, Taiwan, 11/2013-07/2015

- Established SOP of physical and chemical analysis of activated carbon for EDLC
- Established SOP of electrochemical performance of EDLC
- Found out the dominant feature of activated carbon ascribing to the capacitance of EDLC to develop new power/energy oriented product for customers' request
- Advanced the first contract of activated carbon with a EDLC manufacturer

## EDUCATION

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Technische Universität Ilmenau, Germany 07/2013-09/2013

- Developing a composite of vanadium oxide and poly(3,4-ethylenedioxythiophene) (PEDOT) for electrochemical energy storage.

Université de Montpellier, France 05/2012-04/2013

- Studying the mechanism of vanadium oxide catalyzed electroless deposition of RuO<sub>2</sub>-based nanoparticles

National Tsing Hua University, Taiwan

07/2008-06/2013

- Doctor of Philosophy (*D.Phil*) in Chemical Engineering
- Six papers published

National Cheng Kung University, Taiwan

07/2004-06/2008

- Bachelor of Science (*B.S.*) in Chemical Engineering
- Synthesized molecularly imprinted polymer of Cytochrome C by micro-contact printing and established the synthesis procedure and parameter for molecularly imprinted polymer Cytochrome c
- Developed catalysts for Hydrogen Generation by Sodium Borohydride and obtained a promising catalyst which can replace expensive ruthenium catalysts and have ca. twice hydrogen generation rate as literature mentioned.

## **PUBLICATIONS**

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### **(A) Journal Papers (SCI Impact Factor):**

1. Hellen Lesmann, ..., **Jing-Mei Li**, et al., “GestaltMatcher Database - A global reference for facial phenotypic variability in rare human diseases”, *Nature Genetics*, [under review]
2. **Jing-Mei Li**, Chi-Chang Hu, Tzu-Ho Wua, and Yung-Jung Hsu, “Electroless Deposition of RuO<sub>2</sub>-based Nanoparticles for Energy Conversion Applications”, *RSC Advances* (2019)
3. **Jing-Mei Li** and Yung-Jung Hsu, “TiO<sub>2</sub>-Au-Cu<sub>2</sub>O photocathodes: Au-mediated Z-scheme charge transfer for efficient solar-driven photoelectrochemical”, *ACS Appl. Nano Mater.*, (2018)
4. **Jing-Mei Li** and Yung-Jung Hsu, “All-solid-state TiO<sub>2</sub>-Au-SnO<sub>2</sub> Z-scheme Nanostructures photocathode and Au concentration effect on PEC application”, [submitted]
5. **Jing-Mei Li**, Yu-Ting Wang, Yung-Jung Hsu, “A more accurate, reliable method to evaluate the photoelectrochemical performance of semiconductor electrode without under/over estimation”, *Electrochim. Acta*, 267 141-149 (2018) (SCI IF: 4.798)
6. **Jing-Mei Li**, Hao-Yun Cheng, Yi-Hsuan Chiu and Yung-Jung Hsu, “ZnO-Au-SnO<sub>2</sub> Z-scheme Photoanodes for Remarkable Photoelectrochemical Water Splitting”, *Nanoscale*, 8 15720-15729 (2016) (SCI IF: 7.367) (Times cited: 33)
7. Yi-Han Hsu, An T. Nguyen, Yi-Hsuan Chiu, **Jing-Mei Li**, Yung-Jung Hsu, “Au-decorated GaOOH Nanorods Enhanced the Performance of Direct Methanol Fuel Cells under Light Illumination”, *Appl. Catal., B*, 185 133-140 (2016) (SCI IF: 9.446) (Times cited: 14)
8. Rahul R. Salunkhe, Ying-Hui Lee, Kuo-Hsin Chang, **Jing-Mei Li**, Patrice Simon, Jing Tang, Nagy L. Torad, Chi-Chang Hu, Yusuke Yamauchi, “Nanoarchitected Graphene-based Supercapacitors toward Next-Generation Energy Storage Applications”, *Chem. Eur. J.*, 20 13838-13852 (2014) (SCI IF: 5.317) (Times cited: 145)
9. **Jing-Mei Li**, Kuo-Hsin Chang, and Chi-Chang Hu, “Microwave-assisted hydrothermal synthesis of vanadium oxides for Li-ion supercapacitors: The influences of Li-ion doping and crystallinity on the capacitive performances”, *J. Power Sources*, 224 59-65 (2013) (SCI IF: 6.395) (Times cited: 33)

10. **Jing-Mei Li**, Kuo-Hsin Chang, and Chi-Chang Hu, "A novel vanadium oxide deposit for the cathode of asymmetric lithium-ion supercapacitors", *ElectroChem. Commun.*, 12 (12) 1800-1803 (2010) (SCI IF: 4.396) (Times cited: 67)
11. **Jing-Mei Li**, Kuo-Hsin Chang, and Chi-Chang Hu, "The key factor determining the anodic deposition of vanadium oxides", *Electrochim. Acta*, 55 (28) 8600-8605 (2010) (SCI IF: 4.798) (Time cited: 13).
12. Chi-Chang Hu, Kuo-Hsin Chang, Chao-Ming Huang, and **Jing-Mei Li**, "Anodic Deposition of Vanadium Oxides for Thermal-Induced Growth of Vanadium Oxide Nanowires", *J. Electrochem. Soc.*, 156 (11) D485-D489 (2009). (SCI IF: 3.259) (Times cited: 15)
13. Chao-Ming Huang, Chi-Chang Hu, Kuo-Hsin Chang, **Jing-Mei Li**, and Ying-Feng Li "Pseudocapacitive Characteristics of Vanadium Oxide Deposits with a Three-Dimensional Porous Structure", *J. Electrochem. Soc.*, 156 (8) A667-A671 (2009). (SCI IF: 3.259) (Times cited: 50).

**(B) International Conference Papers:**

1. **Jing-Mei Li** et al., "GestaltMatcher Database – a medical imaging database for rare disorders.", **Poster**, Annual Meeting of the AGD, Bonn, Germany, October 06-07, 2022.
2. **Jing-Mei Li** et al., "GestaltMatcher research platform facilitates the novel gene-phenotype exploration.", **Oral Presentation**, European Dysmorphology workshop, Barcelona, Spain, September 14-17, 2022.
3. **Jing-Mei Li**, Kuo-Hsin Chang, Chi-Chang Hu, "Vanadium oxide thin film with high power characteristics for the lithium-ion supercapacitors", **Oral Presentation**, IUMRS-12th International Conference in Asia, Taipei, Taiwan, September 19-22, 2011.
4. **Jing-Mei Li**, Kuo-Hsin Chang, Chi-Chang Hu, "Vanadium oxide thin film with high power characteristics for the cathode of lithium-ion supercapacitors" **Oral Presentation**, The 13th Asia Pacific Confederation of Chemical Engineering Congress, Taipei, Taiwan, October 5-8, 2010.
5. **Jing-Mei Li**, Kuo-Hsin Chang, Chi-Chang Hu, "Electrochemical Deposition of Vanadium Oxides for Supercapacitors: The Key Factor of Determining the  $V^{5+}/V^{4+}$ ", **Oral Presentation**, CIMTEC 2010: 5th Forum on New Materials, Montecatini Terme, Italy, June 13-18, 2010.
6. **Jing-Mei Li**, Kuo-Hsin Chang, Chi-Chang Hu, "Preparation, characterization and mechanism of electrodeposited vanadium oxides: the morphology control", **Oral Presentation**, 56th TwICHe Annual Meeting, Taichung, Taiwan, November 27-28, 2009.
7. **Jing-Mei Li**, Kuo-Hsin Chang, Chi-Chang Hu, "Characterization of Electrodeposited vanadium oxides for supercapacitor", **Oral Presentation**, the 4th Asian Conference on Electrochemical Power Sources, Taipei, Taiwan, November 8-12, 2009.
8. **Jing-Mei Li**, Kuo-Hsin Chang, Chi-Chang Hu, "Microwave-assisted hydrothermal synthesis of Vanadium Oxides for Supercapacitors: The Key Factor of Existence of Lithium-ion", **Poster Presentation**, 62nd Annual Meeting of the International Society of Electrochemistry, Niigata, Japan, September 11-16, 2011.
9. Chi-Chang Hu, Kuo-Hsin Chang, Chao-Ming Huang, Hsin-Yi Guo, **Jing-Mei Li**, "Design of Nanostructured Oxides for Advanced Electro-chemical Supercapacitors", **Oral Presentation**,

CIMTEC 2010: 5th Forum on New Materials, June 13-18, 2010, Montecatini Terme, Tuscany, Italy.

## **KEY TECHNICAL SKILLS**

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### **Rare disorders**

- Analyzing patients with rare disorders
- Analyzing exome sequencing data
- Analyzing photos with facial dysmorphism

### **Software development:**

- Ruby on Rails application
- Database
- Python for data analysis

### **Synthesis:**

- Electrochemical deposition
- Hydrothermal method
- Wet-chemical deposition
- Solid-state synthesis
- Assembling coin cell and pouch cell types capacitor/Li<sup>+</sup> ion battery

### **Analysis:**

- Structure analysis: X-ray diffraction (XRD), Raman spectroscopy, Scanning/transmission electron microscopy (S/TEM)
- Surface analysis: Scanning electron microscopy (SEM), X-ray photoelectron spectroscopy (XPS), Gas adsorption/desorption
- Optical analysis: UV-vis
- Electrochemical analysis: Linear sweep voltammogram (LSV), Cyclic voltammogram (CV), electrochemical impedance spectrum (EIS).
- Photoelectrochemistry: Mott-Schottky plot, Incident photon-to-current conversion efficiency (IPCE)
- Interfacial charge carrier dynamics analysis: Photoluminescence (PL), Time-resolved photoluminescence (TRPL)

### **Equipment:**

- Operating license for SEM- JEOL 6500, FEI Quanta 200, Apreo I, and Apreo II
- Operating license for TEM- JEOL JEM-3000F, FEI Tecnai G2 30 TEM, and F20S/TEM
- Electrochemical Quartz crystal microbalance (EQCM)

## **AWARDS**

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### **National Chiao Tung University**

- Postdoctoral Research Abroad Program, National Science Council of Taiwan, 2016

### **National Tsing Hua University**

- Summer Institute Program, National Science Council Taiwan and German Academic Exchange Service, 2013
- Scholarship of Culture and Education Development Promotion Foundation, 2013
- Joseph Fourier Scholarship in France, 2012
- Shen Yi Scholarship of Chinese Institute of Engineers (CIE), 2012
- Scholarship of Culture and Education Development Promotion Foundation, 2012
- Gao Ying-Shi Chinese Culture Collection Educational Foundation of Kaohsiung, 2011
- Graduate Student Study Abroad Program, National Science Council of Taiwan, 2011
- Li Mou-Wei Education Foundation Scholarship, 2011
- Mr. Liu Wei-Te Education Foundation Scholarship, 2010
- Scholarship of Madam Lou's Culture and Education Foundation, 2010
- Scholarship of Culture and Education Development Promotion Foundation, 2010
- First place of doctoral student's English oral presentation on 56<sup>th</sup> TwIChE Annual Meeting, 2009
- Tsing Hua Principle Award for doctoral program, National Tsing Hua University, 2009.
- Hung Tung Education Foundation scholarship, 2009.
- Scholarship of Culture and Education Development Promotion Foundation, 2009

#### **National Cheng Kung University**

- Scholarship of Zhuo-Zhang Zong Education Foundation, 2008