Xiaocui Wu

Research associate

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born on 17 april 1993 in Xinyang, China

Work Experience

Oct. 2023 **Research associate in Surface Biology**, *Nanoscale Science Department, Max Planck Institute for Solid State Research*, Stuttgart, Germany
« Uncovering the complete sulfation pattern of glycosaminoglycans using single-molecule spectroscopy methods » in the group of Dr. Kelvin Anggara mentored by Prof. Klaus Kern

Oct. 2021 – Sept.2023 **Research associate in Surface Chemistry, Marie Curie EUTOPIA-SIF cofund fellow**, *Department of Chemistry, University of Warwick*, Coventry, United Kingdom
« Imaging structural and electronic properties of conjugated polymers » mentored by Prof. Giovanni Costantini

Dec. 2020 – Sept. 2021 **Research associate in Surface Physics**, *Department of Experimental Physics, Technische Universität Ilmenau*, Ilmenau, Germany
« Dehydrogenation of phthalocyanine on graphene-covered Ir(111) » supervised by Prof. Jörg Kröger

Nov. 2020 **Research associate in Physical Chemistry**, *Centre National de la Recherche Scientifique (CNRS)*, Pais, France
« Corrosion inhibition of 2-mercaptobenzothiazole under ultra low pressure in the presence of water » supervised by Prof. Philippe Marcus

Oct. 2017 – Sept. 2020 **Research assistant in Physical Chemistry**, *Centre National de la Recherche Scientifique (CNRS)*, Paris, France

Education

Oct. 2017 – Sept. 2020 **PhD of Physical Chemistry**, *CNRS-Chimie Paristech, PSL University*, Paris, France
«Adsorption and thermal stability of 2-mercaptobenzothiazole and 2-mercaptobenzimidazole on clean and pre-oxidized Cu(111) surfaces and effect on corrosion inhibition mechanisms» under the direction of Philippe Marcus

Sept. 2015 – Jun. 2017 **Master of Nuclear Engineering** & **Technology**, *Sino-French Institute of Nuclear Energy (IFCEN), Sun Yat-sen University*, Zhuhai, China

Sept. 2011 – Jun. 2015 **Bachelor of Nuclear Engineering**, *IFCEN, Sun Yat-sen University*, Zhuhai, China
Bachelor project: «Geochemical model of the water-rock interaction: concerning the geological disposal of high-level radioactive waste» under the direction of Mingliang KANG

Training

July 2023 **EUTOPIA-SIF fellowship secondment**, *Laboratoire de Physicochimie des Polymères et des Interfaces, CY Cergy Paris University*, Cergy-Pontoise, France
« Molecular modeling (theoretical chemistry) using DFT (Density Functional Theory) and ab-initio methods » supervised by Prof. Gjergji Sini

Nov. 2016 – May. 2017 **Graduation internship**, *CNRS-Chimie Paristech, PSL University*, Pais, France
« Study of the behavior under oxidizing conditions of corrosion resistant alloys » under the direction of Philippe Marcus

Jun. 2016 – Aug. 2016 **Summer internship**, *IFCEN, Sun Yat-sen University*, Zhuhai, China
« Synthesis of magnetite and its reactivity towards U(VI) » under the direction of Mingliang KANG

Jul. 2015 **Operator internship**, *CORYS*, Beijing, China
« Nuclear engineering simulator HMI improvement and validation »

Languages

Chinese	Native	
English	CET6 obtained in 2014, 558/750	*Fluent*
French	DELF B2 obtained in 2015, 74.50/100	*Proficient*
German	Beginner	

Skills

Experiment Ultra-high vacuum, scanning tunnelling microscope (RT and LT), electrospray deposition, X-ray photoelectron spectroscopy, Auger electron spectroscopy, low-energy electron diffraction, X-ray diffraction, electrochemistry

Software MS office, LaTeX, CasaXPS, WSxM, Labview

Conferences

Aug. 2023 **Oral presentation (OP)**, *36th European Conference on Surface Science*, 28 Aug. - 1 Sept. 2023, Lodz, Poland
« Characterisation of Polymerisation Defects in Rigid Rod Conjugated Polymers: Electrospray Deposition Combined with High-Resolution Scanning Tunnelling Microscopy »

June 2023 **OP**, *15th International Symposium on Functional-pi Electron Systems*, 17-21 June, Raleigh, NC, USA
« Polymerization Mechanism of Aldol Condensation Reaction in Rigid Rod Conjugated Polymers »

Oct. 2022 **Poster**, *EUTOPIA-SIF kick off meeting*, 19-21 May, Paris, France
« Imaging structural and electronic properties of conjugated polymers »

May 2022 **Poster**, *5th European Workshop on Epitaxial Graphene and 2D Materials*, 24-28 May, St. Moritz, Switzerland
« Combining ElectroSpray Deposition and High-Resolution Scanning Tunnelling Microscopy to identify Polymerisation Defects in Rigid Rod Conjugated Polymers »

Oct. 2020 **OP**, *PRiME 2020 (ECS Meeting)*, 4-9 Oct., Honolulu, Hawaii, USA
«Surface analytical study of adsorption mechanisms of 2-mercaptobenzothiazole and 2-mercaptobenzimidazole corrosion inhibitors on Cu»

Sept. 2019 **OP**, *Eurocorr 2019*, 9-13 Sept., Séville, Spain
«Adsorption and stability of 2-Mercaptobenzothiazole and effect on the oxidation mechanisms of Cu(111)»

Mar. 2019 **OP**, *Forum des Microscopies à Sondes Locales*, 19-22 Mars, Carry-le-Rouet, France
«STM study of the adsorption and stability of 2-Mercaptobenzothiazole and effect on the oxidation mechanisms of Cu(111)»

Nov. 2018 **OP**, *Matériaux 2018*, 19-23 Nov, Strasbourg, France
«Adsorption of 2-mercaptobenzothiazole and effect on the oxidation mechanisms of Cu(111)»

Publications

1] J. Vanderspikken[+], Z. Liu[+], **X. C. Wu**[+], et.al., On the importance of chemical precision in organic electronics: Fullerene intercalation in perfectly alternating conjugated copolymers, Adv. Funct. Mater. (2023) 2309403, **shared first co-author**.

2] **X. C. Wu**, N. Néel, M. Brandbyge, J. Kröger, Enhancement of graphene phonon excitation by a chemically engineered molecular resonance, Phys. Rev. Lett. 130 (2023) 116201.

3] A. Marks, X. Chen et.al., Synthetic Nuances to Maximize n-Type Organic Electrochemical Transistor and Thermoelectric Performance in Fused Lactam Polymers, J. Am. Chem. Soc. 144 (2022) 4642–4656.

4] **X. C. Wu**, F. Wiame, V. Maurice, P. Marcus, Effects of water vapour on 2-mercaptobenzothiazole corrosion inhibitor films deposited on copper, Corros. Sci. 189 (2021) 109565.

5] **X. C. Wu**, F. Wiame, V. Maurice, P. Marcus, *In situ* X-ray photoelectron spectroscopy study of 2-mercaptobenzimidazole corrosion inhibition films adsorbed at ultra-low pressure on Cu(111) surfaces, npj Mater. Degrad. 5(2021) 1-8.

6] **X. C. Wu**, F. Wiame, V. Maurice, P. Marcus, Moiré structure of 2-mercaptobenzothiazole corrosion inhibitor adsorbed on (111)-oriented copper surface, J. Phys. Chem. C 124 (2020) 15995-16001.

7] **X. C. Wu**, F. Wiame, V. Maurice, P. Marcus, 2-mercaptobenzimidazole films formed at ultra-low pressure on copper: adsorption, thermal stability and corrosion inhibition performance, Appl. Surf. Sci. 527 (2020) 146814.

8] **X. C. Wu**, F. Wiame, V. Maurice, P. Marcus, 2-mercaptobenzothiazole corrosion inhibitor deposited at ultra-low pressure on model copper surfaces, Corros. Sci. 166 (2020) 108464.

9] **X. C. Wu**, F. Wiame, V. Maurice, P. Marcus, Adsorption and thermal stability of 2-mercaptobenzothiazole corrosion inhibitor on metallic and pre-oxidized Cu(111) model surfaces, Appl. Surf. Sci. 508 (2020) 145132.

10] **X. C. Wu**, S.Voyshnis, A. Seyeux, Y. Chumlyakov, P. Marcus, ToF-SIMS study of oxide films thermally grown on nickel-base alloys, Corros. Sci. 141 (2018) 175–181.

11] **X. C. Wu**, A. Seyeux, I. Vickridge, S.Voyshnis, P. Marcus, ToF-SIMS and ERDA study of hydrogen and deuterium in nickel-base alloys oxidized in water, Corros. Sci. 140 (2018) 151–158.

12] **X. C. Wu**, M. L. Kang, Z.Y. Cai, Y. Song, C.M. Shang, F.Q. Xu, J. Wang, Y.W. Li, F.R. Chen, Investigation of redox potential of Beishan site and its impact on mobility of redox-sensitive radionuclides, J. Nucl. Radiochem. 39 (2017) 227-234.

In progress

13] X. C. Wu, et.al, Insight into the Reaction Mechanism of Aldol Condensation Polymerisation in Rigid Rod Conjugated Polymers by High-Resolution Scanning Tunnelling Microscopy, in preparation.

14] J. Surgailis, et.al, The Role of Side Chains and Hydration on Mixed Charge Transport in n-type Polymer Films, in preparation.

Reviewing activities

Reviewer for the Journal of Physical Chemistry C

Honors & Awards

Apr. 2021 **EUTOPIA-SIF Postdoctoral Fellowships**, *European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement n. 945380*

Aug. 2018 **Best Publication Award 2017**, *Journal of Nuclear and Radiochemistry*

Jun. 2017 **Excellent master thesis**, *IFCEN, Sun Yat-sen University*

Jun. 2015 **Outstanding graduates**, *IFCEN, Sun Yat-sen University*

Teaching

Oct. 2021 – Nov. 2021 **Small group tutorial**, *Department of chemistry, University of Warwick*, Coventry, United Kingdom

May 2021 – July 2021 **Laboratory course**, *Department of experimental physics, Technische Universität Ilmenau*, Ilmenau, Germany