**XINXIN ZHANG**

**Personal Data**

**Gender:** Female **Nationality:** Chinese

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**Education**

***09/2012 – 03/2016:***

**Degree of Ph.D. in Materials**

Corrosion and Protection Centre, School of Materials, The University of Manchester, U. K.

***09/2008 - 06/2012:***

**Degree of B.Sc. in Materials Science and Engineering**

Overall GPA: 90+/100 Major GPA: 90+/100 (Rank 2nd)

School of Advanced Engineering, Beihang University, China.

**Research Experience**

**Corrosion and Protection Centre, School of Materials, the University of Manchester, U.K.**

**Research Associate,** 08/2015- Present

**Introduction of the project:**

My post-doc research is funded by the SAPA Group, one of LATEST2’s key collaborative partners and will involve working closely with members of the LATEST2 team at Manchester and industrial collaborators.

The main role is to conduct research on the microstructural evolution of aged Al-Mg-Si and Al-Zn-Mg alloys, intergranular corrosion (IGC) resistance, stress corrosion cracking (SCC) behaviour and the formation of porous anodic films on aluminium that provide desirable optical properties.

My research focus on developing a high level understanding of the factors, including alloy microstructure, fabrication process, surface pre-treatment and anodizing conditions that contribute to improved SCC/IGC resistance and effective coating formation on aluminium alloys to enable the industrial collaborator’s productions lines to produce profiles with well controlled quality in accordance with customer specifications. Through the project, I have:

* Achieved advanced understanding of the microstructural evolution during fabrication and production process, the corrosion development during various testing conditions and the correlation between the microstructure and the corrosion behaviour of aluminium alloys, and the relationship between stress corrosion cracking development and alloy microstructure, with related journal publications in the Publications Lists.
* Obtained knowledge of surface engineering of aluminium alloys, including surface pre-treatment and anodizing process.
* Gained experience of cutting-edge electron microscopy of aluminium alloys, such as scanning electron microscopy (SEM), transmission electron microscopy (TEM), energy-dispersive X-ray spectroscopy (EDX), electron backscatter diffraction (EBSD), transmission Kikuchi diffraction (TKD), electron energy loss spectroscopy (EELS), high angle annular dark field (HAADF) imaging, and high resolution transmission electron microscopy (HRTEM), and corresponding specimen preparation techniques, including: electro-polishing, twin-jet electro-polishing, precision ion polishing system (PIPS), ultramicrotomy and focussed ion beam (FIB) as well as 3D characterization techniques based on FIB, ultramicrotomy and X-ray.
* Gained experience of corrosion susceptibility evaluation via electrochemical measurement, including open circuit potential measurement and potentiodynamic polarization tests.
* Developed an ability to cooperate with a wide range of people, including academic and research staff, technicians, fellow research students, to solve problems and meet deadlines in the project.

**Corrosion and Protection Centre, School of Materials, the University of Manchester, U.K.**

**PhD candidate,** 09/2012- 03/2016

**PhD Thesis:** Microstructure and Corrosion Behaviour of Aerospace Aluminium Alloys.

**Academic supervisors:** Prof X. Zhou and Prof G. E. Thompson.

**Introduction of the project:**

I have worked on the microstructure and the corrosion behaviour of two generations aerospace aluminium alloys, namely Al-Cu-Mg/Li alloys, in my PhD project. The project aims to examine the microstructure of alloys, to assess the corrosion susceptibility of alloys and, finally, to correlate the microstructure with the corrosion behaviour of aerospace aluminium alloys.

**School of Materials Science and Engineering, Beihang University, China**

**Undergraduate Student,** 12/2011-06/2012

**BSc Thesis:** The High Frequency Response Characteristic of Nano-scale Magnetic Multilayer Films (1st class degree with distinction).

**Academic supervisors:** Prof. R. Yu.

**Introduction of the project:**

This final year undergraduate research project involved an investigation of Ni-Cu-Ni sandwich-structure nano-films as well as (Co/Cu)n and (Co/Al2O3)n magnetic multilayer films prepared by pulsed electronic deposition (PED). The interaction between nano-scale magnetic multilayer films, which consists of ferromagnetic layers followed by the nonmagnetic layers, has been analysis, with related conference proceedings in the Publications Lists.

**Publications Lists**

**Publications in Journals**

* X. Zhang, X. Zhou, T. Hashimoto, J. Lindsay, O. Ciuca, C. Luo, Z. Sun, X. Zhang, Z. Tang, The Influence of Grain Structure on the Corrosion Behaviour of 2A97-T3 Al-Cu-Li Alloy,*Corrosion Science, 116 (2017), 14-21.*
* X. Zhang, T. Hashimoto, J. Lindsay, X. Zhou, Investigation of the de-alloying behaviour of θ-phase (Al2Cu) in AA2024-T351 aluminium alloy, *Corrosion Science, 108 (2016), 85-93.*
* X. Zhang, X. Zhou, Y. Ma, G.E. Thompson, C. Luo, Z. Sun, X. Zhang , Z. Tang, The propagation of localized corrosion in Al-Cu-Li alloy, *Surface and Interface Analysis, 48 (2016), 745-749.*
* X. Zhang, X. Zhou, T. Hashimoto, B. Liu, Localized Corrosion in AA2024-T351 Aluminium Alloy: Transition from Intergranular Corrosion to Crystallographic Pitting, *Journal of Alloys and Compounds (In press)*
* X. Zhang, B. Liu, X. Zhou, J. Wang, C. Luo, Z. Sun, Z. Tang, F. Lu, Corrosion behaviour of friction stir welded 2A97 Al-Cu-Li alloy, *Corrosion (In press)*
* T. Hashimoto, X. Zhang, X. Zhou, P. Skeldon, S. J. Haigh and G. E. Thompson，Investigation of S phase (Al2CuMg) Dealloying by High Resolution 2D and 3D Electron Imaging, *Corrosion Science, 103 (2016), 157-164.*
* B. Liu, X. Zhou, X. Zhang, Orthogonal Machining Introduced Microstructure Modification in AA7150-T651 Aluminium Alloy, *Materials Characterization, 123 (2017), 91-98*
* C. Luo, X. Zhang, X. Zhou, Z. Sun, X. Zhang, Z. Tang, F. Lu, G. E. Thompson, Characterization of Localized Corrosion in an Al-Cu-Li Alloy, *Journal of Materials Engineering and Performance*, *25(5) 1811-1819.*
* W. Huang, Y. Ma, X. Zhou, X. Meng, Y. Liao, L. Chai, Y. Yi, X. Zhang, Correlation between localized plastic deformation and localized corrosion in AA2099 aluminium-lithium alloy, *Surface and Interface Analysis, 48 (2016), 838-842.*
* Y. Ma, X. Zhou, W. Huang, Y. Liao, X. Chen, X. Zhang, G. E. Thompson, Crystallographic defects induced localised corrosion in AA2099-T8 aluminium alloy, *Corrosion Engineering, Science and Technology, 6 (2015), 420-424.*
* X. Zhang, M. Zeng, H. Yang, M. Feng, R. Yu, High-frequency Absorption Properties of Fe79.7Ni2.5 Si7.9 B9.8 Amorphous Powders with Different Particle Sizes, *Safety & EMC, 3 (2012), 68-71.*

**Publications in Conference Proceedings**

* X. Zhang, M. Zeng, H. Yang, J. Bao, R. Yu, Electromagnetic Shielding Properties of Polymeric Composites with Amorphous-Ferroalloy and Conductive Fillers, *2nd International Conference on Smart Materials and Nanotechnology in Engineering, Dubai, 2012.*
* M. Zeng, H. Yang, X. Zhang, R. Yu, The in-plane anisotropy and high-frequency response characteristic of the Cu-Co multilayer films, *Chinese* *Forum on Functional Materials: Magnetic Materials and Devices 2012, An Hui, 2012.*

**Honours and Awards**

05/2014 - Third Prize in the Poster Competition, Postgraduate Student Conference,

School of Materials, the University of Manchester, UK.

06/2012 - First Class Degree with distinction, Beihang University, China.

09/2011 - First Class Scholarship for Students, Beihang University, China.

09/2010 - First Class Scholarship for Students, Beihang University, China.

09/2009 - Second Class Scholarship for Students, Beihang University, China.

09/2008 - Second Class Scholarship for New Students, Beihang University, China.

**Key Technical Skills**

* Experience of using optical microscopy (OM), atomic-force microscopy (AFM), XRD, EBSD, SEM, TKD, FIB and TEM, including the related analytical techniques/facilities, such as EDX, EELS, HAADF and HRTEM.
* Experience of using 3D characterization techniques based on FIB, ultramicrotomy and X-ray.
* Skilled in various ways of preparing SEM and TEM samples, including electro-polishing, twinjet electro-polishing, (Gatan)-precision ion polishing systems and ultramicrotomy.
* Skilled in performing various experiments for corrosion evaluation involving different techniques, such as open circuit potential measurement, potentiodynamic polarization testing, scanning vibrating electrode technique and electrochemical noise analysis.

**Languages Skills**

* Proficient in speaking and writing Chinese, as my first language.
* Fluent in spoken English and proficient in written English, with the certificates of TOFEL iBT and GRE general test.

**References**

* Prof Xiaorong Zhou: Professor in Corrosion and Protection Centre, The School of Materials, The University of Manchester, UK

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* Dr Bo Chen: Lecturer in Department of Mechanical and Automotive Engineering, Coventry University, UK

Email: [Bo.Chen@conventry.ac.uk](mailto:Bo.Chen@conventry.ac.uk)

* Dr Jan-Olov Nilsson: Senior Manager in Sapa Technology Ltd, Oslo, Norway

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