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Engineering & Scientific Consulting

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Professional Profile

Dr. Xi has led complex technical investigations, under both legal and industrial settings, in the fields of microelectronics, printed circuit boards, consumer electronics, battery, photovoltaic cells, nanomaterials, paints and coatings, polymers, medical devices, pharmaceuticals, biological materials, and construction materials. Using her materials science and materials characterization skills, Dr. Xi routinely assists clients with product development, technical due diligence, material selection, formulation optimization, manufacturing method selection and process optimization, modeling/design/prototype reviews. In regulated industries, Dr. Xi also provides technical guidance to clients in the areas of standardized and customized testing, quality control method development; field audits and supplier evaluation; risk assessment and risk management; regulatory filing support including FDA/CFDA/NMPA/EU registration as well as technical support on litigation and international arbitration matters.

During her time as consultant at Exponent, Dr. Xi has helped numerous clients – ranging from small startups to Fortune 500 companies – solve material performance issues related to fracture, delamination, contamination, discoloration, corrosion, degradation, reliability, biocompatibility, welding, optical failure, electronic failure and mechanical failure.

Dr. Xi is well-versed in various analytical techniques and has extensive experience applying ISO9001:2015 quality management systems, OHSAS 18001:2007 occupational health and safety management system and ISO/IEC 17025 Laboratory Management system for her client base, which spans Hong Kong, mainland China, Asia and United States.

Academic Credentials & Professional Honors

Ph.D., Physics, Chinese University of Hong Kong, 2005

M.Phil., Condensed Matter Physics, Peking University, China, 2002

B.S., Theoretical Physics, Northwest University, P. R. China, 1999

2023: CQI/IRCA Certified Medical Devices – Quality Management Systems (ISO 13485:2016) Lead Auditor

Selected Honors and Certificates

2019 CQI/IRCA Certified ISO9001:2015 Lead Auditor

2014 OHSAS 18001:2007 – Internal Auditor

2014 Certified TRIZ Level 1 Specialist

2010 ISO/IEC 17025 Laboratory Management System Internal Auditor

2003 Certificate of Appreciation as Excellent Teaching Assistant in 2002-2003, Physics Dept. CUHK

1994 – 1999 Multiple undergraduate awards in Mathematics and Computer Science and outstanding student, P.R. China

Prior Experience

Engineer, Hong Kong Science and Technology Parks Corporation, Hong Kong, 2007-2015

Postdoctoral Fellow at Surface Science Western, University of Western Ontario, Canada, 2006-2007

Research Associate in the Department of Physics, Chinese University of Hong Kong, 2005-2006

Professional Affiliations

Member of the Surface Analysis Committee of Guangdong Test and Analysis Association

Languages

Cantonese Chinese

Publications

Michael Kovochich, Monty Liong, Jillian A. Parker, Su Cheun Oh, Jessica P. Lee, Luan Xi, Marisa L. Kreider, Kenneth M. Unice, Chemical mapping of tire and road wear particles for single particle analysis. Science of The Total Environment, Volume 757, 25 February 2021, 1440852.

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Xi L, Zheng Z, Lam N-S, Nie H-Y, Grizzi O, Lau WM. Study of the hyperthermal proton bombardment effects on self-assembled monolayers of dodecanethiol on Au(111). Journal of Physical Chemistry C 2008; 112(32):12111–12115.

Dou R-F, Ma X-C, Xi L, Yip HL, Wong KY, Lau WM, Fan X-L, Jia J-F, Xue Q-K, Yang W.S., Ma H, Jen AK-Y. Stability and flexibility of self-assembled monolayers of thiols consisting of a horizontal large π -system and a vertical spacer. Journal of Physics: Condensed Matter 2008; 20(31):315012.

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Nieradko M, Ghonaim NW, Luan X, Nie HY, Francis J, Grizzi O, Yeung K, Lau WM. Primary ion fluence dependence in time-of-flight SIMS of a self-assembled monolayer of octadecylphosphonic acid molecules on mica discussion of static limit. Canadian Journal of Chemistry-Revue Canadienne de Chimie 2007; 85(12):1075–1082.

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Rodriguez L, Gayone JE, Martiarena ML, Sanchez EA, Grizzi O, Blum B, Salvarezza RC, Xi L, Lau WM. Direct recoil spectroscopy of alkanethiol covered surfaces. *Nuclear Instruments and Methods in Physics Research Section B – Beam Interactions with Materials and Atoms* 2007; 258(1):183–188.

Xi L, Zheng Z, Lam N-S, Grizzi O, Lau W-M. Effects of hyperthermal proton bombardment on alkanethiol self-assembled monolayer on Au (111). *Applied Surface Science* 2007; 254(1):113–115.

Xi L, Ma L-Y, He K, Wang Z-T, Xue Q-K, Xiao X-D, Lau W-M. Study of Fe deposition onto - Al/ Si (111) template by scanning tunneling microscopy. *Surface Science* 2006; 600(15):3072–3078.

Dou R-F, Ma X-C, Xi L, Yip HL, Wong KY, Lau WM, Jia J-F, Xue Q-K, Yang WS, Ma H, Alex K-Y. Self-assembled monolayers of aromatic thiols stabilized by parallel-displaced π - π stacking interactions. *Langmuir* 2006; 22(7):3049–3056.

Xue K, Xu J-B, Xi L, An J, Chen J. In situ fabrication and characterization of tungsten nanodots on SiO₂/Si via field induced nanocontact with a scanning tunneling microscope. *Nanotechnology* 2005; 16(12):2993–3000.

Chow H-F, Leung C-F, Xi L, Lao LWM. Synthesis and characterization of outer sphere-outer sphere connected organoplatinum dendritic networks from surface-difunctionalized and surface-trifunctionalized dendritic monomers. *Macromolecules* 2004; 37(10):3595–3605.

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Luan X, Yunfeng S, Jiandong G, Gongcheng X. Dynamic measurement of the Hall effects versus temperature in high T_c superconductor. *Chinese Journal of Low Temperature Physics* 2002; 24(1):1–6.

Xiaoyun H, Yinsui Z, Aihua G, Luan X, Zhiguo Lu. The structure of TiO₂ and SiO₂ optical coatings prepared by Sol-Gel method. *ACTA Photonica SINICA* 2000; 29(8):730–733