



Dr. WEN LI
BEng, MSc, PhD

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Wen Li obtained her MSc and PhD in Chemistry at The University of Manchester in UK, and a BEng degree in Material Science and Engineering at Tongji University in Shanghai. Prior to joining Brookes Bell, Wen worked at Puraffinity Ltd, a London-based bioengineering start-up for wastewater treatment. Multidisciplinary researcher experience enables her to develop wide skills in organic chemistry, analysis chemistry, advanced material characterisation, and novel composite materials development. She joined Brookes Bell as a cargo scientist in December 2018.

Wen has attended on vessels and at commodity facilities to investigate cargo deterioration, design sampling protocols, oversee sampling to International Guidelines and to design, oversee and interpret analytical procedures for a variety of commodities. Wen have dealt with and been involved in claims for various types of cargo damage, such as grains and especially soybeans, chemical contamination, fruit deterioration, contamination to frozen seafood, liquefaction of mineral cargo, fire investigation of self-heating cargo in containers, to name a few.

Wen's MSc research concerned development of photocleavable lipids and studying the products formed after irradiation while her PhD research topic involved application of dynamic combinatorial chemistry (DCC) concepts to lipid self-assembly and lipid interactions with graphene surfaces. Her research enabled her to develop skills in a variety of analytical chemistry techniques, including NMR, FTIR, LC-MC, GC-MS, SEM, TEM, differential scanning calorimetry (DSC) and dynamic light scattering (DLS).

At Puraffinity Ltd, her combined scientific research and engineering background enabled her to develop synthesis of innovative products, characterise them (e.g. with SEM, TEM, TGA) and reliably scale up their production from lab (mg) to industrial (kg) scale – a challenging milestone with variable, bio-based raw materials. This resulted in a patent application for a product showing market leading performance to remove micropollutants (e.g., PFASs) from wastewater. She also supported the project with analytical chemistry skills (e.g., LCMS, GCMS) and developed a novel method for analysis of used firefighting foam (AFFF) process water.

Academic Qualifications

PhD in Chemistry, The University of Manchester.

Dissertation: 'Synthetic Vesicles from Stimuli-responsive Amphiphiles'

MSc in Chemistry, The University of Manchester.

Dissertation: 'Sulfonyl Hydrazides as Novel Caged Lipids for use in Biochemistry'

BEng in Material Science and Engineering, Tongji University.

Dissertation: 'Proton Conductive Materials based on Hollow Silica Spheres'

Publications

Li, W, Mcmanus, D, Liu, H, Casiraghi, C and Webb, S 2017, 'Aqueous dispersions of nanostructures formed through the self-assembly of iminolipids with exchangeable hydrophobic termini' Physical Chemistry Chemical Physics.

Patent AU WO 2019/186166 A1, 'Modified polyamines grafted to a particulate, solid support as sorbent materials for removal of target substances from fluids', 03 October 2019.

Previous Employment History

2017.08 – 2018.11 Puraffinity Ltd. Process Development Manager

Puraffinity (rebranded from CustoMem) is a spinout company from Imperial College London developing bio-based absorbent materials targeted at removing high impact emerging contaminations called Per- and polyfluoroalkyl substances (PFASs) from water. Wen was responsible for the product development and scale up of production from lab (mg) to industrial (kg) scale.

- Responsible for the product production process and scale up of production.
- SOP update and management
- Resource planning, supporting the ongoing budgeting process
- Planning, scheduling and executing agreed development plans to scale-up lead product candidates
- Representing the company at road shows, exhibitions and conferences
- Customer communication to understand customer needs regarding deliverables & technical expectations
- Supporting with appropriate IP Rights protection strategies (patent, trade secret, trademarks, copyright etc.) around products, processes, commercial insights, brand and other areas of commercial priority

2013.09 – 2016.12 The University of Manchester Laboratory Teaching Assistant

Other Entrepreneurial Experience

World Economic Forum (WEF) Annual Meeting of New Champions – Tianjin, China. Wen represented CustoMem Ltd. and invited to speak about female led entrepreneurship.

North-West Europe BioBase4SME Innovation Camp – York, UK. The workshops for Bio-based SMEs from UK and EU. The aim was to train entrepreneurs to run their business. Courses included IP, value proposition, leadership, operations, branding, pitches to investors, and networking.

Manchester Enterprise Summer School – Lake district, UK. The aim was to explore business opportunities in this area using enterprise skills learnt from workshops. ‘The best pitch’ award.

Selection of Cases Since Joining Brookes Bell

- More than 50 cases of soybean cargo in bulk, including issues of self-heating, water ingress, metal/fuel oil/other foreign material contamination
- Self-heating and/or wet damage to grains and oilseed cargoes (e.g., maize, yellow peas, wheat, sunflower pellets etc)
- Insect invasion to rice, wheat, and ore cargoes in bulk
- Damage to vegetable oil, like sunflower seed oil
- Liquefaction issue of Group A cargo (e.g., ball clay, iron ore)
- Fuel oil contamination to frozen seafood
- Damage to frozen fruit
- Contamination and/or off-specification of liquid chemicals carried by tankers (e.g., Benzene, Styrene Monomer, n-butyl alcohol, Ethylene Glycol, 1-Hexene), including organisation and witnessing of lab analysis
- Cargo quality control during salvage STS operation of chemical vessels
- Witnessing lab tests of bunker fuel oil samples
- Fire investigation for containers
- Coating inspection of cargo tanks
- Advise on carriage of DRI cargo
- Advise on carriage of chemicals in containers.
- Attended hearings as expert at Guangzhou, Xiamen, Tianjin, Ningbo Maritime courts