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Professional Profile

Dr Ben Lake's current work focuses on the compilation and submission of REACH registration dossiers and the provision of in-house expertise in the fields of organometallic/inorganic, polymer and organic chemistry. Prior to joining Exponent, Dr Lake worked as a senior research chemist at Charnwood Molecular, a drug discovery CRO, developing and executing complex synthetic routes to potential API compounds.

Dr Lake originally graduated from the University of York with an MChem in Chemistry in 2010, which included a year in industry working for a spin-out company based in the Netherlands. Following this, he completed his Ph.D. in organometallic chemistry at the University of Leeds, where his work largely focused on the synthesis, characterization and application of transition metal-NHC (N-heterocyclic carbene) complexes. Dr Lake then worked as a postdoctoral research associate at the University of Edinburgh, investigating the controlled radical polymerization of acrylate and styrene monomers mediated by novel iron and titanium complexes. Dr Lake's second postdoctoral appointment was at Nottingham Trent University, where he investigated the synthesis and properties of highly Lewis acidic cationic antimony(V) compounds. Aided by multiple industrial and academic collaborations, Dr Lake is a named author on 14 peer-reviewed research articles and a further 3 book chapters.

Academic Credentials & Professional Honors

Ph.D., Chemistry, University of Leeds, UK, 2014

M.Chem., Chemistry, University of York, UK, 2010

Prior Experience

Senior Research Chemist, Charnwood Molecular, 2019 – 2022

Research Fellow in Organometallic Chemistry, Nottingham Trent University, 2018 – 2019

Post-Doctoral Research Associate in Polymer Chemistry, University of Edinburgh, 2014 – 2017

Publications

Silver (I) N-Heterocyclic Carbene Complexes Derived from Clotrimazole: Antiproliferative Activity and Interaction with an Artificial Membrane-Based Biosensor. H. A. Mohamed, S. Shepherd, N. William, H. A. Blundell, M. Das, C. M. Pask, B. R. M. Lake, R. M. Phillips, A. Nelson and C. E. Willans. Organometallics, 2020, 39 (8), 1318 – 1331.

Radically Initiated Group Transfer Polymerization of Methacrylates by Titanium Amino-Phenolate Complexes. D. L. Coward, B. R. M. Lake and M. P. Shaver*. Macromolecules, 2019, 52 (9), 3252 – 3256.

A Five-Membered PdSbn Coordination Series. A. Jolleys, B. R. M. Lake, T. Krämer and S. L. Benjamin. Organometallics, 2018, 37 (21), 3854 – 3862.

Polymeric hole-transport materials with side-chain redox-active groups for perovskite solar cells with good reproducibility. R. F. Pineda, B. R. M. Lake, J. Troughton, I. Sanchez-Molina, O. Chepelin, S. Haque, T. Watson, M. P. Shaver and N. Robertson. Physical Chemistry Chemical Physics, 2018, 20 (40), 25738 – 25745.

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Organometallic Mediated Radical Polymerisation (OMRP). D. L. Coward, B. R. M. Lake and M. P. Shaver*. Metal-Catalyzed Polymerization: Fundamentals to Applications, Chapter 6, CRC Press, 2017.

Iron (II) β-ketiminate complexes as mediators of controlled radical polymerisation. B. R. M. Lake and M. P. Shaver*. Dalton Transactions, 2016, 45 (40), 15840 – 15849.

N-Heterocyclic carbenes; partakers not just spectators. B. R. M. Lake, M. R. Chapman and C. E. Willans*. Organometallic Chemistry: Volume 40, 2016, 107 – 139.

A Synthetic and Multispectroscopic Speciation Analysis of Controlled Radical Polymerization Mediated by Amine–Bis (phenolate)iron Complexes. H. Schroeder, B. R. M. Lake, S. Demeshko, M. P. Shaver* and M. Buback*. Macromolecules, 2015, 48 (13), 4329 – 4338.

Mechanistic Elucidation of the Arylation of Non-Spectator N-Heterocyclic Carbenes at Copper Using a Combined Experimental and Computational Approach. T. J. Williams, J. T. W. Bray, B. R. M. Lake, C. E. Willans*, N. A. Rajabi, A. Ariafard*, C. Manzini, F. Bellina, A. C. Whitwood and I. J. S. Fairlamb*. Organometallics, 2015, 34 (14), 3497 – 3507.

Solid-state structure, solution-state behaviour and catalytic activity of electronically divergent C, N-chelating palladium–N-heterocyclic carbene complexes. M. R. Chapman, B. R. M. Lake, C. M. Pask, B. N. Nguyen and C. E. Willans*. Dalton Transactions, 2015, 44 (36), 15938 – 15948.

The Interplay of ATRP, OMRP and CCT in Iron-Mediated Controlled Radical Polymerization. B. R. M. Lake and M. P. Shaver*. Controlled Radical Polymerization: Mechanisms, Chapter 17, ACS Symposium Series, Vol. 1187, 2015, 311 – 326.

Synthesis and anticancer activity of silver (I)–N-heterocyclic carbene complexes derived from the natural xanthine products caffeine, theophylline and theobromine. H. A. Mohamed, B. R. M. Lake, T. Laing, R. M. Phillips* and C. E. Willans*. Dalton Transactions, 2015, 44 (16), 7563 – 7569.

Mechanistic Insights into the Oxidative Coupling of N-Heterocyclic Carbenes within the Coordination Sphere of Copper Complexes. B. R. M. Lake, A. Ariafard* and C. E. Willans*. Chemistry: A European Journal, 2014, 20 (40), 12729 – 12733.

Remarkable Stability of Copper(II) N-Heterocyclic Carbene Ligands Void of an Anionic Tether. B. R. M. Lake and C. E. Willans*. Organometallics, 2014, 33 (8), 2027 – 2038.

Structural Diversity of Copper(I)–N-Heterocyclic Carbene Complexes; Ligand Tuning Facilitates Isolation of the First Structurally Characterised Copper(I)–NHC Containing a Copper(I)–Alkene Interaction. B. R. M. Lake and C. E. Willans*. Chemistry: A European Journal, 2013, 19 (49), 16780 – 16790.

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