Your Chemistry has “Potential”
Highly Reactive intermediates without the “bang”.

K. LAM

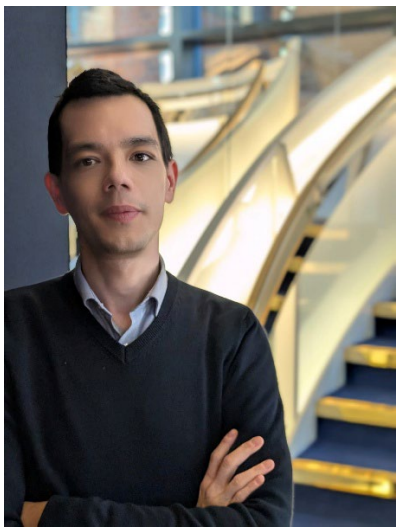
The University of Greenwich, The School of Science, Chatham Maritime ME4 4TB.
k.lam@greenwich.ac.uk

Chemistry thrives on highly reactive intermediates - remarkable tools for building complex molecules. But one might ask: shouldn't their synthesis involve fewer risks than a special life insurance policy?

Synthetic organic electrochemistry, which has its roots in the pioneering work of Faraday and Kolbe on the electrolysis of aliphatic carboxylic acids, has become a powerful tool for sustainable chemical synthesis. Despite numerous successful industrial applications, its wider potential remains under-exploited. However, the increasing demand for greener, safer and more cost-effective synthetic methods has spurred the development of innovative electrosynthetic techniques.

In this talk, we will review novel, safe, green and economically viable electrosynthetic methods for the preparation of highly reactive organic intermediates, including iso(thio)cyanates, isocyanides, carbocations and diazo compounds. These methods significantly reduce the inherent risks associated with traditional synthetic approaches, while improving efficiency and sustainability. We will also highlight the scalability of these processes through flow electrosynthesis and their impactful real-world applications within the pharmaceutical industry, with case studies in collaboration with GSK, AstraZeneca and Johnson & Johnson.





In 2010, Kevin Lam received his PhD in Medicinal and Synthetic Organic Chemistry from the Catholic University of Louvain in Belgium under the supervision of Professor Istvan Marko. His doctoral work led to the development of a new radical-based deoxygenation reaction (the Lam-Marko reaction).

After completing his PhD, he moved to the University of Vermont (UVM). His research focused on the application of analytical/physical electrochemistry alongside spectroscopy to study the complex redox behaviour of organometallic compounds.

In 2013, he accepted a position as Assistant Professor at Nazarbayev University in Astana. During his time in Kazakhstan, Kevin developed a new research programme in molecular electrochemistry.

He then joined the University of Greenwich as a Reader in 2017, and was promoted to Full Professor of Synthetic Electrochemistry in 2023, and invited to take become the head of C-SMART (Centre for Synthesis, Materials, Analytics and Research in Translational Science) in 2025.