**BTM Willis Prize 2022 awarded to Dr Alexander O’Malley**

**Since the first award in 2001, the BTM Willis prize has recognised outstanding contributions by early-career scientists in the field of neutron scattering. In 2022, the prestigious award was made to Dr Alex O’Malley from the University of Bath, for his novel and influential applications of neutron spectroscopy in catalytic science.**

Dr O’Malley was nominated for the award by ISIS scientist, Professor Stewart Parker, who has worked with Alex since 2015 – first as co-supervisor and later as collaborator. “Despite its great potential, quasielastic neutron scattering (QENS) has remained greatly underused in catalysis for almost two decades,” Stewart remarked. “Through numerous research outputs combining molecular simulations with neutron techniques, Alex has led the re-emergence of QENS in the field of catalysis and furthered the dynamic catalysis research programme at ISIS.”

Alex began using neutron techniques to study studying diffusion in microporous catalysts during his PhD, which was based at the UK Catalysis Hub and ISIS Neutron and Muon Source. During this time Alex published [7?] research articles, demonstrating […]. After receiving his PhD from University College London in 2016, Alex undertook a post-doc at Cardiff University, having been awarded the Ramsay Memorial Fellowship to investigate nanoscale molecular mobility in microporous materials for public health applications.

Since 2018, Alex has been a lecturer at the University of Bath, where he now leads a thriving research group. Alex’s research combines molecular modelling with techniques such as inelastic and quasielastic neutron scattering, to understand how molecules behave in microporous catalysts. This approach has proven applicable to many catalytic systems – from fluid catalytic cracking and polymer synthesis, to anticancer drug delivery and water decontamination.

Throughout his research career, Alex has developed strong links with industry, including a long-standing collaboration with sustainable technologies company, Johnson Matthey (JM). JM scientist, Dr Andrew York, supported Alex’s nomination. “I have worked closely with Dr O’Malley for over five years, since our initial meeting during his PhD inspired an important project based on neutron scattering in collaboration with Johnson Matthey. Dr O’Malley’s use of neutrons to study molecular behaviour in porous catalysts is an exciting area of research, which we have found provides unique information, not obtainable using other techniques. For JM, this completely new research activity enabled us to gain greater insight into our emissions control catalysts, while also allowing us to evaluate new lines of research with neutron techniques. I am very proud of the quality of the research we have published together.”

To date, Alex has published over 30 research papers, many of which involve neutron scattering techniques. Alex’s excellent track record has led to several national awards, including the British Zeolite Association’s *Founders Award* for the best PhD student in UK microporous science and, more recently, the prestigious UK Catalysis Hub *Sir John Meurig Thomas Catalysis Medal,* which recognised the significant, real-world impact of his work with neutrons.

The BTM Willis prize is named in honour of Prof. Terry Willis – founder of the UK Neutron Scattering Group, and the well-known for Harwell (later Oxford) School of Neutron Scattering. Since 2001, the IOP Neutron Scattering Group and the Faraday Division of the Royal Society of Chemistry award the prize annually to an early career researcher in recognition of a single outstanding piece of work, or a longer-term coherent body of work, in the application of neutron scattering to a significant problem in physics, chemistry, materials science, earth science, the life sciences, or engineering, or alternatively in recognition of a major development in neutron scattering instrumentation or techniques. Commenting on Alex’s nomination for the Willis prize, his collaborator and former PhD supervisor, Professor Sir Richard Catlow, commented that Alex’s “work is exactly the imaginative and novel use of neutron techniques that Terry Willis would have admired.”

Dr O’Malley will deliver his Willis Prize lecture at UK Neutron & Muon Science and User Meeting (NMSUM) 2022, which will be held at the University of Warwick from 25 – 27 April 2022.