Weekly Seminar by Dr Michael Collins
From the National Measurement Institute

Forensic Applications of NMR in Illicit Drug Chemistry
Tuesday 30th April, 2019
At the Department of Molecular Sciences, Macquarie University

Abstract

During the last 10 years more than 800 new drug molecules have emerged across the world. Routine forensic drug laboratories have found it impossible to keep up with the changing nature of recreational drug use mainly due to a lack of certified reference materials. Only a handful of National forensic laboratories across the world have access to NMR and high resolution mass spectrometers allowing them to undertake the structural elucidation of these new substances. The National Measurement Institute (NMI) receives Australian Border Seizures of new designer drugs and employs 1D and 2D NMR and multi-nuclear NMR techniques to identify synthetic cannabinoids, cathinone derivatives and phenethylamine derivatives. The NMI also employs quantitative NMR to do purity determination of conventional illicit substances such as methylephedrine and MDMA.

Biography

Michael Collins completed his BSc and PhD in Organic Chemistry at University of Sydney in 1984 focussing on Nuclear Magnetic Resonance (NMR) spectroscopy. He has worked in the university and private sectors and State and Commonwealth Government Laboratories. In 2003 he was appointed Lead Scientist by the Australian Government and the Australian Federal Police to create a drug signature program for Australia. In 2005 he was appointed Director of the Australian Forensic Drug Laboratory. Michael sits on the Australian New Zealand Forensic Executive Committee (ANZFEC), the governance body for forensic science in Australia and is a Fellow of the Royal Society of NSW and a member of the Australian Academy of Forensic Sciences. He also serves on two University course advisory committees and the scientific advisory panel for the UN International Narcotic Control Board.