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‘Visionary Polymer Research for a Better World. Professor R. G. “Dick” Jones Commemorative Issue’

This special issue has been published to celebrate the life of Professor R. G. “Dick” Jones, who passed away on the 23rd of December 2021. This series, by its extraordinary breadth and depth, reflects the reach of Dick Jones into many scientists’ lives, in ways many of us are not even aware of.

Dick was born in Nottingham (UK) and then grew up in New Zealand. At the age of 23 he returned on a long, propeller-buzzed flight to study his PhD at Leeds, entitled, ‘Photosensitisation, Retardation and Inhibition of Polymerisations of Acrylonitrile by Fe(III) and Cu(II) Salts’. His supervisor was Lord Dainton and Dick revelled in some of his phrases, such as “the fountain of science”. While the rest of his career was in the UK, with many visits to far-flung places around the world, of which later, he kept New Zealand close to his heart, managing regular visits over the years. His career was cemented with his appointment in 1970 to the then new University of Kent, which had been chartered only five years earlier. His winning a Professorship in 1998, and his subsequent appointment to the Head of the School Physical Sciences spoke greatly of his rigor and his exceptional management skills. These were much in demand, sadly due to restructuring which he had to carry out to save that department during a difficult period for chemistry in the UK.

Looking back to that time, there were few groups in chemistry in Canterbury who had strong financing and real international clout, given its relatively short history, but his was one of them. He was extremely successful in finding Japanese NEDO funding, and this underpinned a highly creative and productive scientific period. His numerous publications were wide-ranging and touched on subjects such as developing electron-beam polymer-resists for microlithography,¹ understanding the appearance of an extraordinary blue colour during the Wurtz reaction,² the multimodal molecular weight distribution of polysilane syntheses,³ and the first examples of conjugated amphiphilic multi-block copolymers.⁴ What was astonishing in this period was the way in which he managed to work several subjects in parallel, each with complete thoroughness, and this speaks of someone who applied themselves with great seriousness, even though his general demeanour would never hint at this. He was always looking for humour, and often the research group would end up at a BBQ at his place, to enjoy good wine and the beautiful garden maintained by David Cheung his partner, his life, and rock for forty years.



Dick (right) and his partner, David Cheung, with Kapiti at Canterbury (UK) in 2014 (photo: Roger Hiorns).



Dick and David on holiday in 1995 in a photo used for their Civil Partnership in 2006 (photo: François Schué).

Aside from his work at *Polymer International*, which helped raise the standard of the journal and help Prof. François Schué set it on its path to becoming a foremost general journal for polymer science, he is best known for his work for IUPAC. He became increasingly involved with the body at the end of the 1990s, working as part of an international team to develop the terminology and nomenclature for polymer research, education, legal and governmental matters all around the world. This meant that every year he globe-trotted to all four corners, and found himself in rooms with the leading polymer scientists of the day debating the meaning and sense of polymer science vernacular. He was appointed Secretary in the early 2000's and was made chair in 2006. Again this was a pivotal role, and he drove what was now the Subcommittee on Polymer Terminology (SPT) forward for new far-reaching projects and an expanded membership. Indeed many joined simply because of his drive. A little-known fact is that while Prof. Bob Stepto coined the now-widely accepted term dispersity to indicate polymer distributions, Dick came up with the idea to use the symbol \bar{d} (\bar{D}). He would have been cheekily amused by how many scientists now struggle to find it on a keyboard.

His Chairing of IUPAC meetings was to be-hold. Swaying between gentle humour such as asking, "what does Wikipedia say?" with a glint in his eye, and forceful cajoling of members, he extolled complete rigour in developing terminology and nomenclature, and steered the group with considerable success. His crowning glory one could say would be the publication of the Purple Book,⁵ which can be freely downloaded from the internet.⁶ Meetings would take place in Taiwan, or Australia, Europe and the Americas but always the group would find a room to discuss and debate in complete concentration.

Personally, I remember his last appearance at an SPT meeting in Paris in June 2019. I had invited him to talk on polymer terminology and how it should be developed, as we had had a large number of new members join SPT, and his shared experience was expected to help them on their way. What I did not expect was what happened. Dick sat down in the middle of fifty

people packed around a long oval table, and talked simply and clearly, enrapturing the complete crowd for exactly forty minutes. He spelled out how to develop terminology in a way that mesmerized and held everyone in the room, without slides, no props, just words. Not once did I see a person fidget or look at their phone. It was a remarkable moment.

Often one sees comments about Dick that he enjoyed life and its pleasures to the maximum. Indeed, he loved it and it infectiously extended to those around him. He played Chopin to concert level, with sensitivity and deftness, and moved many with his playing at an impromptu show in Roanoke in 2012. He also enjoyed tinkering with his railway set that often took him back to Leeds and train-spotting.

His personality explains the great breadth and reach of the papers that we have in this series.^{7,8,9,10,11,12,13,14,15,16} I'd like to mention some of these briefly, as all are excellent and so very well speak for themselves. The paper by Graeme Moad reflects with gentle humour on how he, Dick and Aubrey Jenkins, a prior Chair of SPT, struggled with the development of a clear terminology for specific types of controlled chain polymerizations, and more particularly with the term reversible-deactivation radical polymerization (RDRP).¹⁷ In two papers right up Dick's street, are Michael Buback and Greg Russell's work which really is a complete and comprehensive review of the characterisation and understanding around chain-termination in radical polymerizations,¹⁸ and Natalie Stingelin and Blair Brettmann's fantastic paper with their colleagues on degrees of polymer crystallinity *versus* polymer crystalline quality.¹⁹ We also should spend a moment to reflect on Prof. Melissa Chin Han Chan, who so very sadly, and so young, passed away last year. She was a dynamic and inspiring member of SPT and leader of SPEd – its sister committee for polymer education. With her exceptional efficiency she actually submitted two excellent papers when she was still ill, and they were of such quality that after review they were accepted directly. They consider the rheology of blends of PEO and two acrylates,²⁰ and with lithium perchlorate, a promising material for batteries.²¹ Her loss is another terrible blow to the IUPAC community. A great piece of work by Brian Tighe, Paul Topham and colleagues on poly(lactide)s initiated with Sn(OnBu)₂, reducing the need for tin²² would have been enjoyed by Dick given his appreciation of their work and his attachment to Aston as its external examiner for some years, and the excellent paper by Carmen Schulz on click chemistry with polyacrylates,²³ for whom Dick held in extremely high regard. The excellent papers by Iseli Nantes and her colleagues on the use of nanostructured ferric oxide and photochemistry, and Fanny Coumes and colleagues on magnetic polymer hybrid materials²⁴ speak to Dick's enjoyment of photochemistry in his PhD and mixed inorganic systems.²⁵

Dick left a wide number of papers, and many great memories from Canterbury and around the world. His enthusiasm, and rigour will remain as defining qualities, but above all the enjoyment of life and others will remind us that science can and should be fun.

Our thoughts and heart-felt sympathies remain with David.

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- ⁶ <https://iupac.org/cms/wp-content/uploads/2016/01/Compendium-of-Polymer-Terminology-and-Nomenclature-IUPAC-Recommendations-2008.pdf>
- ⁷ A close look at polymer degree of crystallinity *versus* polymer crystalline quality <https://doi.org/10.1002/pi.6508>
- ⁸ Living and controlled reversible-activation polymerization (RAP) on the way to reversible-deactivation radical polymerization (RDRP), Moad G, <https://doi.org/10.1002/pi.6424>
- ⁹ Detailed analysis of termination kinetics in radical polymerization <https://doi.org/10.1002/pi.6501>
- ¹⁰ Rational design of stimuli-responsive magnetic polymer hybrid (nano)materials <https://doi.org/10.1002/pi.6510>
- ¹¹ Oktavia L. W. et al <https://doi.org/10.1002/pi.6529>
- ¹² Correlation of thermal, morphological and melt rheological properties of miscible poly(ethylene oxide)/poly(methyl acrylate) and immiscible poly(ethylene oxide)/poly(*n*-butyl methacrylate) blends <https://doi.org/10.1002/pi.6502>
- ¹³ Dielectric relaxation studies of poly(ethylene oxide) with the addition of salt or nanofiller <https://doi.org/10.1002/pi.6487>
- ¹⁴ Use of non-isothermal DSC in comparative studies of tin(II) systems for the ring-opening polymerization of d-lactide <https://doi.org/10.1002/pi.6517>
- ¹⁵ Investigation of the effect of chelating nitrogenous bases on click reactions on poly[(methyl acrylate)-*co*-(5-azido-1-pentene)] <https://doi.org/10.1002/pi.6524>
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