

Citation for Professor Brian Vincent

Graduation: Monday 29 March 2010, 10:30am



Officiator: Dr Ian Gould

Award recipient: Professor Brian Vincent
BSc(Chem), MSc, PhD, DSc

Award being conferred: Honorary Doctor of the University of South Australia (DUniv)

Citation delivered by: Laureate Professor John Ralston AO
Dr.h.c. Abo Akademi, PhD, DIC, DipEd, MSc, BSc (Hons)

Chancellor, the University of South Australia awards the Honorary Doctorate Degree to a person of eminence who has made a distinguished contribution to the public service or a field of academic endeavour. It is my pleasure to present to you Professor Brian Vincent for the honorary degree of 'Doctor of the University', in recognition of his outstanding contribution to the community and to the growth and development of the University of South Australia.

Professor Brian Vincent is distinguished for his many outstanding, wide-ranging and original contributions to the field of colloid and surface chemistry and is internationally recognised as a world leader in the field. He has always led a large group, consisting of postdoctoral fellows and postgraduate students carrying out fundamental research. Many of his students and fellows have become professors and senior industrial research leaders. Brian's links with industry have always been very strong and he has acted as a consultant for many international companies. He was also the Founder and first Director of the Bristol Colloid Centre (BCC, in 1994), which continues to provide short-term research, training and consulting support for industry. The BCC has served as a model for several similar enterprises (including our own Scientific Services Group here at the Ian Wark Research Institute).

Perhaps two of the most significant contributions to our understanding of the physico-chemical properties of colloidal systems were made by Brian early on in his career. He was the first to recognise that weakly attracting colloidal particles underwent a colloidal phase separation process, akin in many respects to molecular condensation processes. Secondly, whilst working on a problem at ICI in 1970 he discovered, experimentally, the flocculating effect of adding non-adsorbing polymers to colloidal dispersions. This developed into the phenomenon which is now widely known as "depletion flocculation". He explained one of the causes of how small particles can stick together, which is central to understanding how paint and cosmetics work. Brian also showed how the adsorption of nanoparticles onto larger, colloidal particles could serve as a model for interpreting molecular adsorption processes. Another major area which he and Prof Terry Cosgrove at Bristol have jointly pursued, with great success over the years, has been the study of how polymers behave at interfaces. Next time you have milk with your breakfast in the morning, just remember that you are drinking a dispersion of little oil droplets in water stabilised by large protein (polymer) molecules! This fine work on polymers led to the publication of a seminal textbook by Vincent and Cosgrove, together with a Dutch theoretical group, in 1993.

Brian's research has also been long-distinguished for its strong capability in the synthesis (and characterisation) of novel systems, both for model experimental studies, and for potential applications. This research has a major impact on the areas as diverse as oil drilling, as well as drug delivery. For example, he was the first to carry out the terminal grafting of polymers to oxide particles, using ionic polymerisation techniques. The study of so-called "polymer brushes" has since become a major field. He was the first to develop electrically-conducting polymer particles, and also monodispersed, surfactant-free silicone oil / water droplets, by a direct synthetic route. Both of these topics have subsequently been taken up by many groups around the World. Brian's group has also made major, original contributions to the synthesis and characterisation of novel types of microgels and core-shell particles, with controlled uptake and drug release applications in mind.

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On the characterisation front, Brian recognised that for measuring the charge on colloidal particles in non-polar solvents, none of the then existing apparatus was suitable. So he developed (in collaboration with Klaus Schätzel, a light-scattering expert) a new technique for measuring, very accurately, very small electrophoretic mobilities: the so-called “phase-analysis light scattering method”. This has now become a standard feature of most commercial machines. It’s very important in ink and tone jet printing.

Finally, I would like to refer to the outstanding contribution Brian Vincent has made to the worldwide fostering of colloid science, in so many ways, over many years. During his period as President of IACIS (International Association of Colloid and Interface Science), he introduced many new initiatives including, from 2003, a series of biennial European-based PhD student conferences, based on our own long-established Australian model.

With respect to the University of South Australia, Brian has been the Chair of the Ian Wark Research Institute’s Research and Technology Advisory Committee. The team consists of excellent international scientists and engineers who visit the IWRI every eighteen months to two years to conduct in depth analyses of the research performance of the Wark. This has been carried out with great distinction, under Brian’s superb leadership.

Chancellor, on behalf of the University of South Australia, I am pleased to present Professor Brian Vincent to you for the honorary degree of ‘Doctor of the University’, in recognition of his significant contributions to the community and to the University of South Australia.