

## PREFACE

The *Festschrift in Honour of Bruce McKellar and Girish Joshi* was held in the School of Physics at the University of Melbourne in Victoria, Australia on 29-30 November 2006. Bruce and Girish have had long and distinguished careers as researchers and academics, and it was my very great pleasure to host this celebration of their careers and achievements. I also wish to personally thank them for their mentoring over the years as I progressed through my own career. Special thanks from me are due to Girish, who was my thesis advisor and always full of ideas about the cutting edge of theoretical particle physics research.

Bruce McKellar received his PhD from the University of Sydney in 1966 under S. T. Butler, R. M. May and M. A. Naqvi. He was then a Fulbright Fellow at the Institute for Advanced Study in Princeton, before moving back to Sydney as a Lecturer and then Senior Lecturer. He was appointed Professor of Theoretical Physics at Melbourne in 1972 at an enviably young age, and maintained that position until his retirement in 2007. He also served for a time as Head of the School of Physics and spent several years as Dean of the Faculty of Science. Most recently, he has been active in senior leadership roles within the Australian Academy of Science, first as Secretary for Physical Sciences and most recently as Foreign Secretary. Amongst many honours and awards, Bruce received the 2006 Massey Medal from the Institute of Physics (U.K.) for his contributions to the standard model of particle physics.

His contributions to research cover a wide range of areas, with an emphasis on theoretical particle and nuclear physics. Work on parity violation in nuclear physics and on three-body forces was the first application of current algebra and chiral symmetry techniques in nuclear physics, and was a precursor to the currently fashionable applications of chiral perturbation theory to the interactions between nucleons. With B. Gibson, he did the standard calculation of non-mesonic decays of  $\Lambda$ -hypernuclei in the standard model. With S. R. Choudhury, X.-G. He and S. Pakvasa, he did the definitive calculation of the neutron electric dipole moment, and this led to extensive work on CP violation beyond the standard model. His work with M. Thomson on neutrino kinetic equations is now regularly used in early universe and supernovae calculations.

Girish Joshi graduated with a PhD from Delhi University in 1965 under the supervision of R. C. Majumdar. He was then a C.S.I.R. postdoctoral fellow at Delhi, before moving to the University of Manchester as a Lecturer. He was also a Visiting Scientist at the International Centre for Theoretical Physics in Trieste, Italy, and prior to taking up his Melbourne appointment in 1970 he was a postdoctoral fellow

at Rutgers University in the United States. He retired at the end of 2005 as a Reader in Physics. He has made important contributions to Regge theory, analytic continuation in the complex angular momentum plane, pentaquark hadrons and dibaryons, physics beyond the standard model and B-physics phenomenology. His particular passion has been the exploration of novel mathematical structures such as quaternions, octonions, Jordan algebras and the like in physics.

Both Bruce and Girish have been outstanding advisors to dozens of successful doctoral and Honours students.

The meeting in November consisted of plenary talks about particle physics and cognate areas, given by some of Bruce's and Girish's closest associates, collaborators, friends and former students. I thank all who participated, speakers and listeners, for making this meeting a success.

It is with great sadness that I have to note the premature passing of Professor Rev. Ron Anderson of Boston College, Girish's first PhD student and a lively participant at the Festschrift.

I thank Professor Herb Fried of Brown University for contributing to the written Festschrift despite being unable to travel to Australia for the meeting. Thanks also to Professor R. Rajaraman of Jawaharlal Nehru University who presented a fascinating public lecture on nuclear disarmament in South Asia in conjunction with the Festschrift. Professor S. R. Choudhury of Delhi University, a frequent collaborator of both Bruce and Girish, was unfortunately unable to attend due to circumstances beyond his control, but was very much there in spirit.

The meeting would not have been a success without the organisational skills of Helen Conley, Executive Manager of the School of Physics at Melbourne, and her team of Cilla Gloger (general organisation and catering), Marcia Damjanovic-Napoleon (registration and finance), Tim Dyce (IT support) and Janet Carlon (group photograph). Thanks to Sandy Law for maintaining the Festschrift web site, and his dogged pursuit of the candid photograph.

Special thanks to Professor David Caro for officially opening the meeting. Professor Caro, a past Vice-Chancellor of the University of Melbourne, was Head of the School of Physics when Bruce and Girish were appointed. His vision enabled the creation of a substantial theoretical particle physics group at Melbourne.

Finally, many of us know that physics is both vocation and avocation. "Retirement" is but a new beginning. You shall continue to see McKellar and Joshi on the pages of your favourite journal.

Raymond R. Volkas  
*(Chair, Festschrift in Honour of  
 Bruce McKellar and Girish Joshi)*

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