Victorian Endowment for Science, Knowledge + Innovation
veski

VESKI Innovation Fellow

Dr Christopher McNeill

Research Project

Nanostructuring and nanocharacterisation of organic semiconductor devices

Project Summary

This ground breaking research looks into new ways to control the nanostructure of organic solar cells and improve light absorption in the active layer which will contribute to the development of low-cost plastic solar cells that have the potential for large-scale generation of clean electricity.

The field of organic semiconductor research has grown dramatically over the last 10 years. The development of new materials combined with improved processing and environmental stability has led to the release of the first consumer products utilising organic light-emitting diodes, field-effect transistors and photovoltaic cells.

However, the full commercial potential of organic semiconductor devices has yet to be realised. To ensure ongoing development of organic semiconductor technology further advances are required in materials development, materials processing and materials characterisation.

With regard to building and transforming Australian industries, Dr Christopher McNeill's research will investigate the potential of 'manufacturable' nanofabrication techniques to control the functionality of organic solar cells.

Dr McNeill has already developed an international reputation in the area of combined structural and device characterization in organic electronics.

Dr McNeill's impressive research track record, extensive international networks, research supervision, and demonstrated leadership in setting new directions in research will make him a valuable addition to the research capacity of Monash University and Victoria in the area of solar energy research.

"Dr McNeill's recruitment to Monash University will substantially enhance Victoria's existing research strength and significant investments in the area of solar energy technologies, both through the project proposed for the VESKI Fellowship and through the attraction of an internationally recognised young scientist who is clearly set on a stellar career trajectory."

Professor Edwina Cornish,
Senior Deputy Vice-Chancellor and Deputy Vice-Chancellor - Research

Dr McNeill joined Monash in March 2011 as a Senior Lecturer and Future Fellow with the Department of Materials Engineering.

After obtaining a Bachelor of Mathematics, a Bachelor Science with Honours and a PhD at the University of Newcastle, Dr McNeill spent six years at the University of Cambridge, UK, as a Research Associate and an Engineering Physical Science Research Council (EPSRC) Advanced Research Fellow.

Dr McNeill will work in collaboration with a team within the functional materials space at Monash University, working in solar energy. His research interests include organic semiconductor device physics, polymer solar cells, organic field-effect transistors, structural properties of organic semiconductor films and synchrotron-based soft x-ray techniques

Personal History
Chris McNeil grew up in Newcastle in New South Wales and completed his under-graduate and post-graduate studies in mathematics and physics at Newcastle University.

Dr McNeill says he chose his subjects because the topics interested him without thinking about his future job prospects. Both his parents were teachers. His father was a physics teacher and Senior Head Teacher at TAFE and his mother trained and worked as an art teacher.

To succeed in academia in Australia, Dr McNeill says he realized that he needed to work overseas and in particular the UK where he found his interest in solar cells.

His wife is a consulting engineer working on large-scale industrial projects and also grew up in Newcastle. He says she was also a keen motivator in moving back to Australia.

However, he says the lure of Melbourne and its research facilities was also a big deciding factor, especially with Monash University being located adjacent to the Australian Synchrotron, the Melbourne Centre for Nanotechnology and CSIRO Molecular and Health Technologies.

Dr McNeill has been appointed as senior Lecturer within the Department of Materials Engineering at Monash University. He secured an ARC Future Fellowship late in 2010. His VESKI Innovation Fellowship started on 31 May 2011. Dr McNeill is also the recipient of Larkins Fellowship from Monash University and has previously been awarded a College Research Fellowship at Clare Hall, Cambridge, and an EPSRC Advanced Research Fellowship.

Other VESKI Innovation Fellowship recipients:
Professor Andrew Holmes AM FRS FAA FTSE
Professor Marcus Pandy PhD
Dr Gareth Forde PhD
Dr Alyssa Barry PhD
Professor Michael Cowley PhD
Professor Sarah Hosking PhD
Associate Professor Ygal Haupt PhD
Dr Ross Dickins PhD
Dr Mark Shackleton PhD
Professor Edwin van Leeuwen FTSE
Dr Matthew Call PhD

VESKI Fellows in an ambassadorial role include:
Professor Adrienne Clarke AC
Professor Peter Doherty AC
Professor Alan Trounson
Mr Brian Jamieson
Dr Janine Kirk AM
Professor Christina Mitchell

For further information visit www.veski.org.au
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BACKGROUND INFORMATION

VESKI [Victorian Endowment for Science, Knowledge and Innovation] assists outstanding Australian scientists and leading innovators to undertake their research in Victoria and contribute to building an inspired community where innovation, ideas, and business provide benefits for Australia. VESKI is supported by the State Government of Victoria.

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MONASH University

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