

“Washing without Water and other Stories of Innovation”

. . . accelerating research into societal innovation



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There is a global need to maximise societal sustainability of food, energy and water. This talk presents two “extraordinary” stories of innovation that impact the environment. Both arise from fundamental university-based research that is being translated into society. Both present radical innovations that are disruptive to current societal practises.

The first story will describe the development and industrialisation of a new and almost water-free method of washing for industrial and domestic laundry, saving water and power¹. The pathway from discovery to commercialisation is described.

The second describes a method for storing energy in liquid air (that is plucked from the atmosphere), this also provides a means of power cars and providing refrigeration²⁻⁵. This provides the basis for a major new centre at the University, recognised and funded as one of the “Great Eight British Technologies”⁶.

The talk highlights the issues associated with seeking to apply rather radical ideas and the clear role for universities, government and industrial partners to work together to make commercially disruptive innovations gain traction in society. Both stories are still in their infancy but illustrate the potential for true global impact in the energy and environment.

1. www.xeroscleaning.com

2. www.lowcarbonfutures.org/sites/default/files/potential-guide.pdf

3. www.liquidair.org.uk/full-report

4. www.highview-power.com/

5. www.dearmanengine.com/

6. www.gov.uk/government/uploads/system/uploads/attachment_data/file/249262/energy_storage_infographic.pdf



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Professor Williams is Pro Vice Chancellor at the University of Birmingham and Head of the College of Engineering and Physical Sciences. He is a scientist and engineer with a strong interest in innovation in the manufacturing and energy sectors.

He has specific expertise in the science and engineering of colloidal and particulate systems, minerals, process imaging and modelling and in novel methods for energy storage. He leads a new Centre for Cryogenic Energy Storage in the UK, funded under the Great Eight Technologies initiative by the UK Engineering and Physical Research Council (EPSRC).

He has received several awards for innovation in the process industries including the Silver Medal of the Royal Academy of Engineering and a Thomas Edison Award. He is a Fellow of Royal Academy of Engineering and a Fellow of the Australian Academy of Technological Sciences and Technology. He is a highly cited researcher in particle science with over 410 journal articles and books. Professor Williams is a graduate of Imperial College London and formerly held senior roles at Universities of Exeter and Leeds. He is a visiting professor at UNSW (Sydney) and the Chinese Academy of Sciences (Beijing). In April 2014 he was named as a 'UK RISE Leader', as one of the ten nationally inspirational leaders in UK science and engineering by the EPSRC. He is on the Council of West Midlands CBI, Birmingham City Green Commission and a director of several companies including 'The Manufacturing Technology Centre', Ansty.

www.birmingham.ac.uk/staff/profiles/university/richard-williams.aspx

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