

TALL POPPY CAMPAIGN

Investing in Australia's Future

Young Tall Poppy Profile: Dr Leigh Sheppard

Name: Dr Leigh Sheppard

Research Field: Solid State Chemistry

More Specifically: Solar Energy / Renewable energy

Qualifications: BE (Ceramic)(Hon I), PhD (Materials Science)

Current position: Research Associate

University/Institution: Centre for Materials Research in Energy Conversion, University of New South Wales

What do you do?

Leigh's work directly addresses climate change through the development of a clean and sustainable new fuel, called solar hydrogen, as an alternative to fossil fuels. Solar hydrogen is generated by splitting water into hydrogen and oxygen using a semiconductor. As part of a research team, Leigh is developing better semiconductors, a crucial step in making it possible to mass-produce solar hydrogen and reverse climate change in the future.

Why is this research important? How is it relevant to society at large?

Solar hydrogen is widely recognised as the fuel of the future because – unlike fossil fuels – it doesn't generate carbon emissions during its production or consumption, so it's vital to reversing climate change.

What's difficult about it?

Some barriers to the mass-production of solar hydrogen remain, including the need for cleaner, more efficient semiconductors [which is what Leigh is working on now] and gaining investment from governments and industry in this important technology.

Why are you passionate about it?

I believe that one day, hopefully sooner rather than later, solar-hydrogen technology could be the mass supplier of clean energy for Australia, and perhaps the rest of the world.

Working on a project that is part of the solution to the biggest problem of our time – climate change – inspires me to challenge technological and personal frontiers.

Why share your research with high school students?

Sharing my research and inspiration with high school students – young people who share my concerns for the future – is one of the most interesting and rewarding aspects of my job.

Why study sciences?

Science is a good career for anyone who wants to make a positive difference. Putting a man on the moon, finding cures for cancer or AIDS and providing clean drinking water to the third world are problems that can affect anyone but only scientists can competently address them.

My work requires an understanding of many areas of science – including chemistry, physics, and materials science, as well as political lobbying and business skills.

Is it what you've always wanted to do?

At school, I really wanted to design aerospace vehicles. Then at university I learned about climate change and got inspired to focus on being part of the solution to that instead.

What else are you into?

Golf, swimming, surfing, reading and investing in the share market.

Public profile:

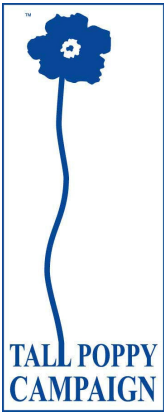
Leigh has given talks at museums, schools, university Open Days, appeared on television programs *Catalyst* and *Sunrise* as well as being interviewed in the *Sydney Morning Herald*. Leigh was also recently invited to speak at a United States Department of Energy Panel of Experts reviewing proposals for mass production solar hydrogen.

Founded by the Australian Institute of Policy and Science

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Your achievements - How did you get where you are today?

Your HSC subjects: 4 Unit Maths, 2 U Chemistry, 2 U Physics, 2 U Engineering Science, 2 U General English, 1 U General Studies

Degrees: Bachelor of Ceramic Engineering (1st Class Honours), PhD (Materials Science)

Some of your previous position/s:

Industrial Training, CSR Building Materials & BHP

Research Associate, Centre for Materials Research in Energy Conversion, UNSW

Awards and prizes: Leigh has received 10 undergraduate and 3 postgraduate prizes, including a Coop Industry Scholarship (hence all the Industrial Training), and Australian Postgraduate Award (scholarship to complete my PhD) and an AINSE Postgraduate Award (scholarships to complete my PhD) and a prestigious international award from the German Academic Exchange Program (DAAD).

Published works: He has published over 50 articles and two book chapters, as well as guest editing two special issues of international journals.

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