

Powering the car industry's green revolution

Electric vehicles have the potential to revolutionise modern transportation and reduce fossil fuel emissions that contribute to climate change. However, the Li-ion batteries used to power electric cars contain graphite. This is a highly polluting and energy intensive material that is increasing pollution in places like China, where the majority of the world's lithium-ion battery cells are produced.

An innovative solution to this paradox has been devised by Dr Wang Wei, Professor at Nanjing University of Aeronautics and Astronautics. He has developed a more efficient Li-ion battery using silicon nano materials. This reduces demand for environmentally-damaging graphite and improves battery performance by up to 12 times. Dr Wang has already established two companies to take this exciting new technology through to commercial success.



Supported by the Leaders in Innovation Fellowships programme, Dr Wang gained access to an international network of leading innovators and mentors. This helped him to improve his business expertise, and develop the confidence to set up a company in Nanjing producing the nano silicon material for Li-ion batteries. His company successfully attracted RMB 10 million – over £1 million – investment in 2016, and the produced material in 2019 could meet the demand of around 15,000 electric vehicles. The company has also collaborated with other industry partners around the world.

Dr Wang's innovation will provide critical support to the electric car industry and has already benefited the UK sector. In 2018, Dr Wang collaborated with St John's Innovation Centre to set up a research company in the UK which will collaborate with Cranfield University on the recovery technology of waste Li-ion battery in 2019. The company will provide up to three full time jobs in Cambridge and will lead to further joint research and commercialisation projects.

The Leaders in Innovation Fellowships programme is delivered by [Royal Academy of Engineering](#) and the [Chinese Academy of Engineering](#), under the Newton Fund, to build entrepreneurial capacity and commercialisation skills of Chinese innovators.

"During the two weeks' training in the UK, my mind was like a sponge, absorbing knowledge on how to set up a business and make it a success. I am very lucky to have met my mentor in the UK who shared all his expertise and experience on business incubation. The LIF programme provided me with great support when I was struggling to commercialise my research project."

Dr Wang Wei, Professor, Nanjing University of Aeronautics and Astronautics

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