Prof Andy Xueliang Sun

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Canada Research Chair in Development of Nanomaterials for Clean Energy
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Prof Andy (Xueliang) Sun is Professor and Canada Research Chair (Tier I) for the development of nanomaterials for clean energy, at the University of Western Ontario, Canada. Dr Sun received his Ph.D degree in Materials Chemistry at the University of Manchester, UK, in 1999. Then, he worked as a post-doctoral fellow in the University of British Columbia, Canada, during 1999-2001. He was a Research Associate at the National Institut de la Recherche Scientifique (INRS), Quebec, Canada, during 2001-2004.

Dr Sun's research is focused on advanced nanostructured materials for energy conversion and storage including fuel cells and Li batteries. Dr Sun is an author and co-author of over 180 refereed-journals (e.g. Nature Communications, Advanced Materials, J. Am. Chem. Soc., Angew. Chem., Adv. Fun. Mat., Energy & Environmental Science), one book and nine book chapters. He holds ten US patents. Dr Sun is actively collaborating with industries and government labs such as Ballard Power Systems, General Motors, Lithium Phostech Inc., and Canadian National Defense. Dr Sun received various awards such as Early Researcher Award (2006), Canada Research Chair (2007) and University Faculty Scholar Award (2010) and Western Engineering Prize for Achievement in Research (2013).

Dr Sun's research is associated with materials science and surface science in general. Particular interests are currently concentrated on nanotechnology and clean energy. Specifically, Dr Sun's and his group's research activities include synthesis of carbon nanotubes and metal oxide nanowires as electrodes for fuel cells and sensors.

Dr Sun's research group (called "Nano+Energy@Western Group") is using various methods, including chemical vapor deposition (CVD), plasma enhanced CVD and template methods, to fabricate one-dimensional nanomaterials such as nanotubes and nanowires. These nanomaterials have been integrated into fuel cell and sensor electrodes to reduce their cost and improve their performance.

Dr Sun's research is a mixture of fundamental studies and practical applications. An important aspect in his studies is to understand the growth mechanisms of nanomaterials and their behavior in fuel cells and sensors by applying various modern characterization techniques such as high-resolution transmission electron microscopy (HRTEM), field-emission scanning electron microscopy (FE-SEM), X-ray photoelectron spectroscopy (XPS), scanning Auger microscopy (SAM), energy-dispersive X-ray analysis (EDX), X-ray Diffraction (XRD), scanning probe microscopy (SPM) and electrochemical methods.

Advanced Nanostructured Materials and Interface Design for Energy Conversion and Storage

Abstract: (To be provided)