

NANOMATERIALS FOR ENERGY and WATER Management

NTU – HUJ CREATE Phase II



The Hebrew
University of
Jerusalem



NANYANG
TECHNOLOGICAL
UNIVERSITY



Programme Leaders



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The joint research programme between Hebrew University of Jerusalem (HUJ) and Nanyang Technological University (NTU) on “Nanomaterials for Energy and Water Nexus” commenced in October 2016.

The research programme is funded by the National Research Foundation and is managed by Singapore-HUJ Alliance for Research and Enterprise (SHARE), under the Campus for Research Excellence and Technological Enterprise (CREATE).

Research

NEW-CREATE develops novel materials and devices for three themes: printable energy materials and devices, energy modulation and storage systems for buildings, and materials and processes for energy-water nexus. This project aims to innovate advanced materials in pushing the scientific frontiers in energy harvesting, conservation and storage to meet the energy-water nexus needs

through innovative manufacturing processes.

The programme aims to bring scientific excellence and innovation, leading to technology transfer, licensing and entrepreneurship.

Theme 1 : Printable energy materials, processes and devices

Provides platform technologies for fabrication of energy related devices, based on past achievements in 2D printing, and bringing new technology such as 3D printing. 3D printing is achieved by using an additive process.

Theme 2 : Energy modulation and storage systems for buildings

Aims at developing adaptive energy systems and materials that can be integrated into buildings, and enable energy storage with the focus on addressing the global challenge of excessive energy consumption for thermal management.



Theme 3: Advanced materials and processes for energy-water nexus

Focuses on integrating some of the findings in the Energy and Water thrusts of Phase 1 of the program, and to bring new ideas that will enable technologies which support water-efficient energy systems .

Researchers

A total of 47 researchers are working in this programme. They consist of post-doctoral fellows, research associates, project officers and PhD students. In the research teams, there are a total of 16 Principal Investigators (PIs), 11 from Nanyang Technological University and 5 from the Hebrew University of Jerusalem. All HUI PIs hold a joint appointment with NTU and a joint PhD program is in place.

Strategic collaborations with other printing centers in Singapore and Israel

The field of additive manufacturing is considered as the fourth industrial revolution. Singapore has been also focusing on boosting the skills in advanced manufacturing including the 3D printing industry. This programme aims to be a leader in materials science and development for additive manufacturing, while focusing on using these technologies for energy and energy-water nexus sectors, in creating value-add skills and propagating the technology capability. The programme proposes to work on new and emerging materials tailored for AM such as carbon fibers, graphene, silicone hybrids and the impact of multi-material capabilities.



NEW CREATE Phase II kick off meeting, 11 August 2016

The programme aligns with Singapore's plans for the Future of Manufacturing to develop new and disruptive technologies such as 3D printing or functional coatings with our expertise in developing new materials. This will also serve as a collaboration platform with the Singapore Center for 3D printing in NTU, the 3D printing center at HUJI, SIMTECH's roll-to-roll printing capabilities and various industries, with the end goal for energy and energy-water nexus devices and systems.

For more information, please contact: NTU-HUI@ntu.edu.sg
Website: <http://www3.ntu.edu.sg/new-create/index.html>

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