

POLYU Junior Researcher Mentoring Programme 2024



Code:	JRMP2024_27
School / Department:	School of Fashion and Textiles
Name of Research Team Member(s):	Dr Manas Kumar Sarkar, Teaching Fellow Mr Ritwik Chakraborty, Research Assistant Mr Ng Shui-wing, Assistant Technical Officer
Research Topic:	Application of nanotechnology to textiles for developing functional materials
Short Description of the Research Project:	<p>Nanotechnology is a promising field of modern science dealing with particles with a magnitude of a few nanometres ($> 10^{-9}$ m). This technology is being explored in the field of textiles to generate more diverse materials with advanced properties that are difficult to achieve without nanotechnological expertise.</p> <p>In this project, textile fabrics of various woven designs will be nanocoated to impart ultra-hydrophobic properties, popularly known as super-hydrophobicity, to the fabric. This superhydrophobic quality of textile fabrics is sometimes described as the 'Lotus effect' drawing an analogy with the water-repelling quality of lotus leaves. This property is viewed as a major value addition to textile materials as it makes them self-cleaning and works as a barrier to protect them from water, moisture and outside temperatures, making it suitable for multifunctional applications.</p> <p>The project will encompass the following steps: the selection of appropriate chemicals, development of woven textile fabrics, application of selected chemicals on various woven fabrics and characterisation of the fabrics. Several property parameters of the fabrics will be assessed to evaluate the efficacy of the nanocoating technology and coating parameters on various fabrics.</p>
No. of Places Offered:	3
Frequency of Meetings:	Weekly (Except examination period)
Special Requirement(s):	The participating students should be able to communicate in English.

* The information presented above is subject to change.