



Media release

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New powdery future for wool and silk

New applications of wool and other natural fibres are expected from an international collaboration between Deakin University, the Australian Nuclear Science and Technology Organisation (ANSTO) and Tufts University in the United States. The initiative recently received Australian Research Council Discovery Project funding.

Professor Xungai Wang, project leader and head of Deakin University's Centre for Material and Fibre Innovation said that "As well as discovering potential new uses for natural protein fibres, the research could also have implications for industry sustainability, particularly in the case of wool."

The work will explore how to turn natural fibres such as wool and silk into ultra-fine powders potentially leading to a new range of products such as artificial skins, medical bandages and pollution absorbers.

Dr Suzanne Smith, an ANSTO Senior Research Fellow, explained that the powders and the potential benefits are particularly interesting.

"This is an exciting journey which may lead to a new range of environmentally friendly products which can be used to absorb and clean up pollutants. These would be biodegradable and have extraordinary behaviour characteristics such as faster and higher absorption rates than current products," she said.

"Natural powder products such as wool and silk are biocompatible therefore are potentially ideal for wound protection, artificial skin or even drug delivery."

"Ultimately the goal is to produce a platform technology with 'green' organic micro and nano particles that have a wide range of applications".

This work will support the Australian wool industry, and could underpin the development of a future sustainable protein fibre industry. It will also assist in recycling and reducing current high levels of product lost to waste.

ANSTO will develop novel "nuclear sensors" to probe the binding and surface properties of these ultra-fine powders. The information will be used to refine processing methods in order to optimise the design of silk and wool materials. The project is expected to run over the next three years.

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