



MEDIA RELEASE

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Deakin research first in dyeing wool that changes colour in the sun

Wool clothes that change colour in the sun and provide protection from harmful UV rays could be the next fashion trend thanks to new research at Deakin University.

Tong Cheng, a PhD student with Deakin's Centre for Material and Fibre Innovation, has developed for the first time a way of colouring wool with photochromic dye.

Photochromic products undergo a colour change when exposed to UV radiation. Photochromic dyes and wool are incompatible when applied by traditional dyeing methods.

Miss Cheng, under the supervision of Deakin's Drs Tong Lin and Rex Brady, has created a polymer that holds the photochromic dye and is then applied to the surface of wool fibres.

"Tong Cheng had to solve some very challenging technical issues to get to this stage," Dr Brady said.

The special polymer contains a huge number of tiny pores for trapping the dye.

"Tong Cheng had to ensure that the pores in the polymer were just the right size—if they were too large, for example, the dye would seep out. It was also important that the polymer allowed the colour change for the dye to take place quickly—this she has achieved," Dr Brady explained.

To ensure marketability of any clothes produced with this technique, the polymer should not interfere with the feel of the wool and must be durable and colour fast.

"It is impossible to notice the difference between normal wool fabric and fabric coated with the polymer," Miss Cheng said. "The fabric maintains its softness and drape and the colour is preserved when washed."

Wool fabrics are both luxurious and comfortable. Gone are the days when wool garments were regarded as traditional and old-fashioned items.

"It is exciting to be able to work on new techniques to extend the range of possibilities for wool garments," Miss Cheng said.

"We could soon be seeing wool T-shirts that only reveal their patterns when worn outside or in a disco with black lights. Having patterns appear this way also opens up novel marketing and fashion opportunities."

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Miss Cheng said that an unexpected bonus with the polymer coating was its UV protection quality.

“We have found that the polymer absorbs harmful UV rays in sunlight,” Miss Cheng said. “When applied to wool, these polymers enhance the natural UV absorption of the fibre, further increasing the SPF (Sun Protection Factor) afforded by wool garments. Initial tests have shown these rays are almost totally blocked.”

Miss Cheng’s research has been funded by the China-Australia Wool Innovation Network (CAWIN) program — a partnership between Australian Wool Innovation (AWI) and Deakin University.

The significance of her work has been recognised with two recent awards— Materials Australia’s prestigious 2006 Borland Forum Award and the 2007 AWI/DWI Award for Excellence in Wool Science.

Ends

Miss Tong Cheng and other researchers involved in the project are available for interview.

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