

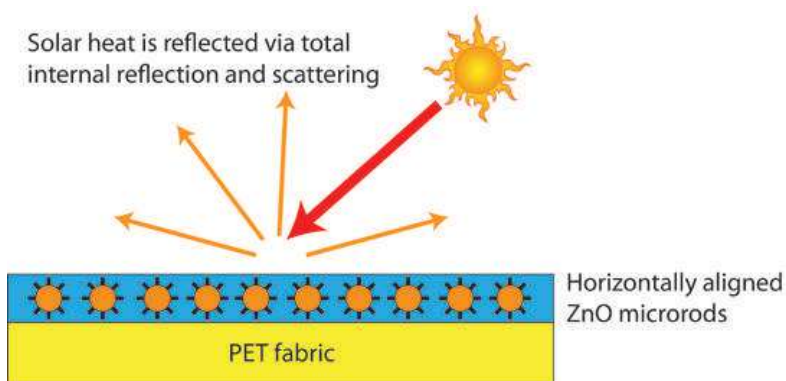
# Solar Heat Shielding Using Micro-hair from Saharan Silver Ant

## 具高效阻擋太陽熱能的建築布料

Dr. Songmin SHANG, Associate Professor, Institute of Textile and Clothing (ITC)

### Special features 技術特點

- ▶ Use of inexpensive finishing equipment  
使用廉價的整理加工設備
- ▶ Easily to be carried out in conventional textile factories  
易於在傳統紡織工廠內進行整理加工



室外太陽能屏障通常昂貴且防曬能力低。理大研究團隊開發了一種對紡織品進行仿生物整理加工的技術，模仿撒哈拉銀蟻的細毛結構，通過合成氧化鋅(ZnO)微棒並將其以對齊陣列的方式塗覆在聚酯織物上達到高效反射太陽熱能的目的，可顯著提高對太陽熱能的阻擋能力，從而降低溫度。此技術可提高建築布料阻擋太陽熱能的能力，可應用為低成本的節能屋頂，提高熱舒適性，並減少冷氣機的使用。

Outdoor solar shielding is often expensive and inefficient. A bionic textile finishing is developed that will turn polyester fabrics into solar heat reflecting textiles for sustainable green buildings. It solves to the main drawback of current architextile products, i.e. the limited protective ability against solar heat during the hot summer. This finishing technology simulates the micro-hair structure of Saharan silver ant (SSAnt) by coating the fabricated ZnO microrods in aligned array on the PET fabric. These microrods on PET fabric can effectively reflect the solar heat. The finished fabric can shield the solar heat and reduce temperature of the area under the treated fabric.

This technology can improve solar heat shielding ability of fabric roofs, allowing them to be applied as low-cost cool roof. Thus, the increase of thermal comfort architextile construction, resulting in the reductions of use of air conditioners, power consumption and urban heat island effect.



Innovation and Technology  
Development Office  
創新及科技發展處



Contact Us  
Ir Steven Lam, Manager  
Innovation and Technology Development Office  
T (852) 3400 2864  
E [steven.tf.lam@polyu.edu.hk](mailto:steven.tf.lam@polyu.edu.hk)



[www.polyu.edu.hk/itdo](http://www.polyu.edu.hk/itdo)