# 自動清潔布料
# Self-Cleaning Fabric Technology
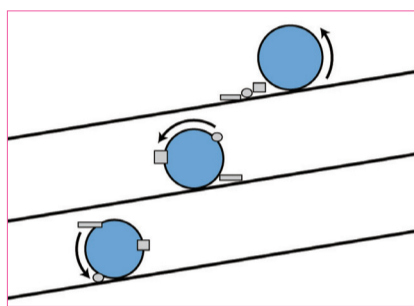
## 具有防止和降解污物的自動清潔科技
## Self-cleaning garment can achieve self-cleaning function via the Lotus Nano™ bionic surface fabrication technology and the patented nano photocatalysis technology

自動清潔服裝的布料是由 Lotus Nano™ 納米仿生科技及納米自清潔科技製造而成的。自動清潔服裝能夠防止和降解污物，有色污漬，塵埃，異味，細菌，甚至清除有害氣體。透過傳統的浸漬、焙乾、焙烘處理，布料中的纖維便會形成一個納米結構層。這層納米結構模仿荷葉表面，更有效地防水、防油。自動清潔服裝更大程度上減少洗滌，從而有利環保。自動清潔服裝兼備出色的抗紫外光性能，適用於戶外穿著。此外，這種納米處理在日常使用和洗滌中，保持優良的耐久性，且不會影響織物的手感和布料的透氣性。
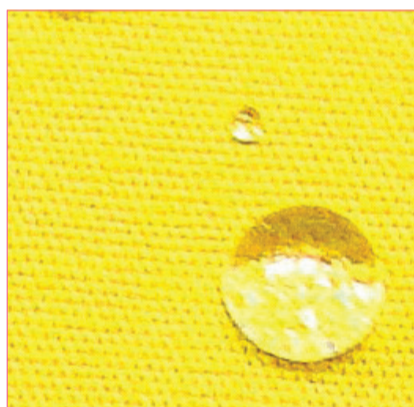
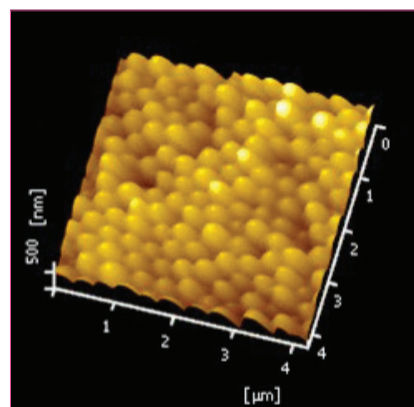Lotus Nano™納米仿生布能防止液體或固體的污物結聚在布面上，並能在清水的沖淋下，自行清潔表面的塵埃與固體的污物。一旦有液體或固體污物應壓力或密切接觸而附著在布面時，納米自清潔功能便開始發揮作用。

專利申請編號及國家：10/332,767(美國) 10/849,014(美國) 7,255,847(美國) 200410083560.4(中國)
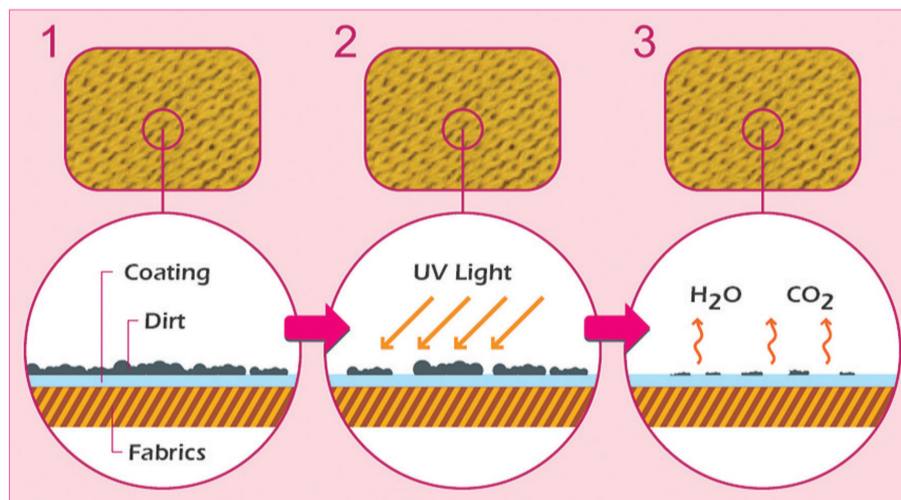
### 特 色 與 優 點

自動清潔服裝，利用 Lotus Nano™ 納米仿生科技及納米自動清潔科技，防止和降解污物，有色污漬，塵埃，異味，細菌，甚至清除有害氣體。自動清潔服裝兼備出色的抗紫外光性能，適用於戶外穿著。

### 應 用

這種納米仿生科技及納米自清潔科技能應用於運動服、優閒服、工作服、鞋類、室內裝飾用布、傢俱、地毯、窗簾、手提電話內布料、醫學布料、技術性紡織品、建築用織物、甚至紡織物料例如：玩具和皮革製品等。

### 獎 項

- 第五屆中國國際發明展覽會銅獎（2004年9月）
- 第三十四屆瑞士日內瓦國際發明及創新技術與產品展金獎(2006年4月)



Blue colorant: from left to right: before UV,24h UV irradiation and 36 h UV irradiation.



Lotus Nano™ bionic surface fabrication fabric



Demonstration on the Lotus fabric



Nano structure by AFM



Patent Application No: 10/332,767(US) 10/849,014(US) 7,255,847(US) 200410083560.4(PRC)

## Special Features and Advantages

Self-cleaning fabric is made by the fabric specially treated with Lotus Nano™ bionic surface fabrication technology and patented nano photocatalysis technology. The self-cleaning fabric can repel and self-clean dirts, coloured stains, dust, odours, bacteria, and harmful gases if in contact. Nano-structures are formed on the surface of fibres after the application of the nanomaterials using conventional dip-dry-cure approach. Self-cleaning fabric can effectively reduce the laundering process so as to protect the environment. The self-cleaning fabric also possesses excellent durable UV protection property. The treatment has excellent durability towards washing and normal usage without sacrifices the soft hand and breathability of textile fabrics.

Fabric treated with Lotus Nano™ bionic surface fabrication technology can prevent liquid or solid dirt from sticking on its surface. The fabric can self-clean the dirt on its surface when it is rinsed with water. Once liquid or solid dirt is stuck on the fabric surface under pressure or close contact, the patent pending nano photocatalysis function will start action.

Self-cleaning garment can repel and self-clean dirts, coloured stains, dust, odours, bacteria, and harmful gases via the Lotus Nano™ bionic surface fabrication technology and the patent pending nano photocatalysis technology. The garment also offers excellent durable UV protection property to wearers.

## Applications

The technology developed for self-cleaning garment can be applied to: sportswear, leisurewear, formal wear, footwear, interior textiles, wall fabrics, furniture fabric, carpets, curtains, automobile interior fabrics, medical fabrics, technical textiles, geotextiles, special textile materials, soft toys, and leather.

## Awards

- Bronze Award, the 5th China International Invention Expo (September 2004)
- Gold Award, the 34th International Exhibition of Inventions, new Techniques and Products, Geneva (April 2006)

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