

# 微吸盤彈性黏貼織物

## A Re-peelable Adhesive Tape Inspired by Octopus Suckers

構思來自八爪魚吸盤的可反覆使用的彈性黏貼織物

A re-peelable and reusable elastic tape that adheres with micro-suckers

專利申請編號及國家: 201310023241.3(中國)

### 特色與優點

- 彈性膠帶具備微納圖案表面結構，可重複使用多次
- 微納圖案表面結構的構思來自八爪魚的吸盤，眾多微吸盤的范德華力總和令彈性膠帶牢固地黏貼在表膚上。而膠帶可輕易剝除，所需的力度極少

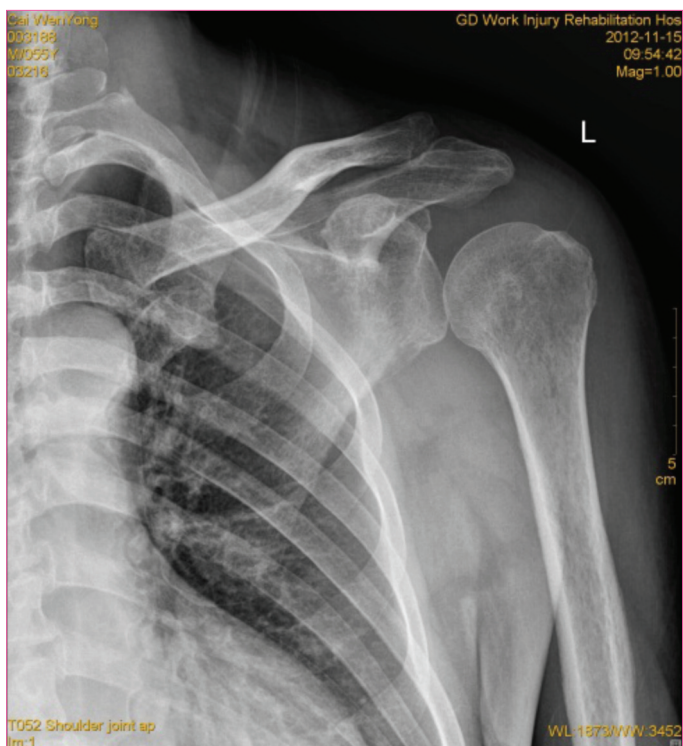
### 應用

- 固定脫臼部位，控制受傷關節的移動幅度
- 取代部分受傷肌肉的功能
- 漸進矯正肢體的畸形情況，例如內翻足
- 把儀器固定在皮膚表面

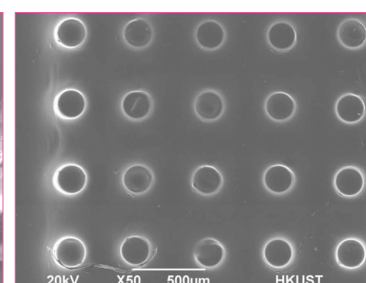
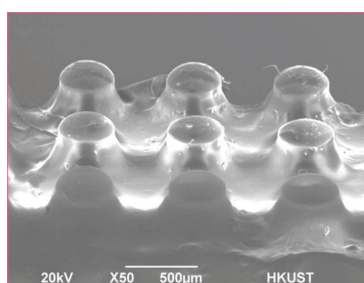
### 獎項

- 第42屆瑞士日內瓦國際發明展 - 金獎 (2014年4月)

市面上的醫用黏接布大多以輕巧的薄膜覆蓋傷口，一般難以在皮膚和膠帶間提供足夠的黏附力。而黏性較強的醫用膠帶則難以剝除，甚至會引致疼痛及皮膚損傷。理想的醫用膠帶應可重複使用，使用期可長達數月，並可每天清洗。



X光相顯示中風後的病人，其肩關節呈半脫位狀態  
Radiograph of a post-stroke patient who suffers from shoulder joint subluxation



掃描電鏡觀察仿八爪魚吸盤的微納吸盤 (左: 側面圖; 中: 頂面圖; 右: 八爪魚吸盤)  
Electromicroscopy of the micro-suckers (left: lateral view; middle: top view)



備有收縮功能的彈性黏貼織物，能模擬人工肌肉把受傷肩關節固定於正常位置  
Acting as an "artificial muscle", the contraction feature of the re-peelable adhesive tape keeps the injured joint in a normal position

Most of the medical adhesive sheets available in the market are designed to provide a very light and thin film to cover the wound. The adhesive strength of the sheets may not be sufficient to form a solid interface between the tapes and the skin. Medical adhesives with high tackiness are difficult to remove and may result in pain and damage to the skin. The ideal tapes are reusable for several months and can be cleaned daily with water.

### Special Features and Advantages

- The adhesive elastic tape containing an elastic polymer with biomimetic micro-pattern is re-peelable and reusable.
- The micro-pattern is inspired by an octopus's suckers which can achieve a good adhesion to the substrate by Van der Waal's force. The removal of the micro suckers is easy and requires little effort.

### Applications

- External fixation of subluxed joint and control of the range of motion of the injured joint
- Partial replacement of the function of injured muscle
- Progressive correction of extreme deformities, such as clubfeet
- Ability to adhere a device to the skin

### Award

- Gold Medal – 42nd International Exhibition of Inventions of Geneva, Switzerland (April 2014)

#### Principal Investigator

Dr Xia GUO

Department of Rehabilitation Sciences

#### Contact Details

Institute for Entrepreneurship

Tel: (852) 3400 2929 Fax: (852) 2333 2410 Email: pdadmin@polyu.edu.hk

A research project of HKRITA



THE HONG KONG 香港紡織及成衣研發中心  
RESEARCH INSTITUTE OF TEXTILES AND APPAREL

