THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

INSTITUTE OF TEXTILES & CLOTHING 紡織及製衣學系

ITC Research Student Seminar 2016-17

Date : 24 April 2017 (Monday)
Time : 4:00 pm – 5:00 pm
Venue : Room ST602, 4D Theatre, The Hong Kong Polytechnic University

Speaker : CHEUNG Hing Fu, Channal (PhD Student)
Topic : Non-aqueous Color Fading Effect on Cotton with Industrial Application

Speaker : NG Pui Fai (PhD Student)
Topic : Highly Luminous Natural Fibers Decorated with $CaWO_4$:Eu,Na Nanoparticles through One-Pot Synthesis

Speaker : TONG Shuk Fan (PhD Student)
Topic : Study of heel interface pressure of elderly and proper use of pressure ulcer preventive instruments

Speaker : WANG Wen (PhD Student)
Topic : A study of Self-grown Fashion and Textile Innovation

Speaker : ZHANG Qian (PhD Student)
Topic : Low-stress mechanical properties measurement and hand value evaluation in terms of woolen fabric with interlinings

Abstracts

Topic: Non-aqueous Color Fading Effect on Cotton with Industrial Application

China population occupied over 1.38 billion, No matter on supply or demand that always by volume wise, By increasing the demand of water. It is sharply. Along with economy arise up in China, environment pollution was increasing with industry in same rhythm. One of the major elements “water”. This project was under “teaching company scheme project”, and the purpose of this study was to investigate the new methodology “atmospheric pressure plasma” (Ozone) treatment on non-aqueous color fading effect on cotton with industrial application, experimental works were tried to find out the relationship between a combination of parameters, (dyeing depth, treatment duration, gas concentration, and fabric moisture content) to show whether it will change the value of reflectance curve (R%), K/S values, CIE L*, a*, b*, C*, h value and ΔE*. Research specimens go through a series of analytical methods of color measurement, which evaluation by using CIE LAB colorimetric system, result of reflectance curve (R%), K/S values, CIE L*, a*, b*, C*, h value and ΔE*, values and color levelness (RUI) were measured by Spectrophotometer under illuminant D65. The analysis results showed that the degree of color fading effect has positive correlation by changing processing parameters, and those data provide for industrial reference on application to reduce the variance on the desired color fading effects.

Topic: Highly Luminous Natural Fibers Decorated with $CaWO_4$:Eu,Na Nanoparticles through One-Pot Synthesis

In order to manufacture luminous microtubes from natural fibers, a facile and general biomimetic mineralization method was presented to introduce the $CaWO_4$-based nano phosphors into kapok lumens. The structure, composition, and luminescence properties of resultant fibers were investigated with microscopes, X-ray diffraction (XRD), thermogravimetric analysis (TGA), and fluorescence spectrometry (FS). The yield of phosphor granules inside kapok was significantly promoted with a treatment at high temperature and pressure – the hydrothermal treatment. The tungstate granules grown on the inner wall of kapok fibers showed the same crystal structures with those naked powders, except for reduction in crystal size. The obtained fiber assemblies demonstrated reduced emission in comparison to the naked phosphor powders. However, the decorated fibers gave more stable luminescence than the naked phosphor powders in wet condition. This approach explored the possibility of decorating natural fibers with high load of nano phosphors, hinting potential applications in flexible and soft optic devices, anti-counterfeit labels, and security textiles.

Topic: Study of heel interface pressure of elderly and proper use of pressure ulcer preventive instruments

The heels are one of the most common sites of pressure ulcers, and the incidence rate in the elderly aged 70 or older is high and the healing is particularly difficult. This study reports the effects of different foot positions on heel interface pressure and the healing progress of heel pressure ulcer elderly. 51 elderly, 70 years old or older, are evaluated while lying down, with only their naked foot in its natural position on a mattress, as well as placed on a standard or pressure relieving mattress in different positions. Also, an eighty-six year old elderly individual with a Stage III heel ulcer is examined two months after he was discharged from the hospital. The results show that the relaxed position of the foot is in neutral external rotation and upright positions and greater amount of pressure is experienced when the foot is upright. The pressure relieving mattress is more effective for reducing heel pressure, but may not apply to all cases. In the case report, it is found that careful and proper wound care, a sufficiently nutritious diet, regular repositioning and appropriate use of pressure ulcer preventive instruments are the main elements that enhance healing.

Topic: A study of Self-grown Fashion and Textile Innovation

The global rise in oil price, animal and environmental protection has resulted in the cost of synthetic materials. There have been increasing attempts for fashion material production to be re-defined towards cost effective, labour friendly and biodegradable. A study has been carried out to explore the future development of fashion design and the possible applications of materials which can be grown from natural renewable and degradable resources. This presentation gives a review on past and present attempts for creating products and fashion with its materials and/or fabrics cultivated in laboratory, e.g., new material developments using biological organisms to grow garment out of them towards novel fashion creations. Although literature of this area remains scarce and scattered, it is apparent that the future development of the grown material towards fashion design and application will be a key direction.

Topic: Low-stress mechanical properties measurement and hand value evaluation in terms of woolen fabric with interlinings

Fusible interlinings are widely used in woolen fabrics to create and maintain good silhouette of men's suits. In order to explore the effect of fusible interlinings on woolen fabrics, this study objectively measured low-stress mechanical properties and subjectively evaluated hand value on woolen fabrics with interlinings. The low-stress mechanical properties of woolen fabrics were investigated using the Kawabata Evaluation System for Fabrics (KES-F). In addition, subjective evaluation of hand value by judges gender and background efficiency was analyzed statistically. The results revealed that low-stress mechanical properties and hand values of woolen fabrics changed remarkably after fusing interlining. Furthermore, Judges gender and background influence the hand value assessment on woolen fabric with interlinings. This study indicated the impact of the fusible interlinings on the low-stress mechanical properties and the significant changed in the hand value on woolen fabrics with interlining have implications for appear manufacturing.

~ All are welcome ~