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Features

30 Challenges in Moisture Management Testing

By Iza Wojciechowska

The disparity between tests done in a lab and tests based on human performance is quite significant. However, as technology continues to improve, the future of moisture management testing holds a lot of promise.

36 How the Circular Economy is Changing Fashion

By Amanda Cattermole

An alternative to the traditional linear economy, which relies on the “extract, make, use, and dispose” model, the *circular economy* keeps resources in use for as long as possible, extracts the maximum value for those resources in use, and recovers and regenerates those resources at the end of the product's service life. Increasingly, the adoption of a circular economy is being seen as the salvation, and only alternative, for a textile and apparel industry under siege because of wasteful and polluting practices.

Technology

43 Image Sharpness Enhancement for Textile Testing

By Jinfeng Zhou, Lingjie Yu, Rongwu Wang, and Bugao Xu

When an optical lens system is used to capture textile images, which are required for textile tests (e.g., fiber diameter, yarn hairiness, and fiber orientation), the captured images show significant multifocal phenomenon. Blurry targets in a textile image can interfere with testing accuracy and generate testing error. Therefore, prior to image processing, it is necessary to implement an image fusion technique to preserve this critical visual information.

We developed an imaging system to capture a series of multi-focus images of the same view using an automatic optical microscope and proposed an image fusion method with a novel sharpness function to generate a fused image. Comparisons were made with other image fusion methods to confirm that the proposed image fusion algorithm possessed obvious superiorities to human visual assessment and objective evaluations. For measurements of yarn hairiness and fiber diameter, the results obtained by the fused image method had much greater accuracies than those determined when not using this technique.

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