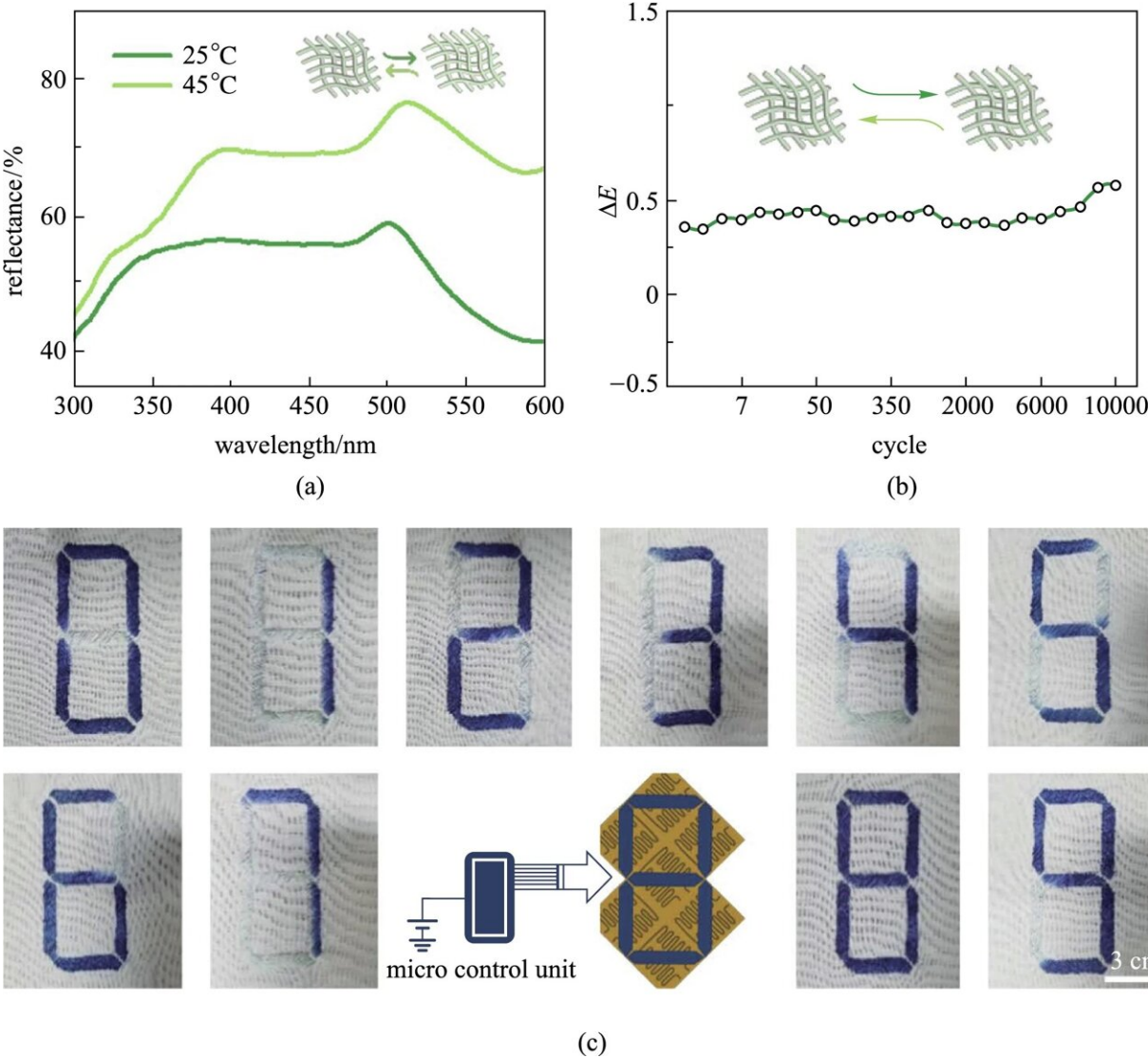


Flexible thermochromic fabrics enabling dynamic colored display

November 3 2022



Performance of thermochromic fabrics and fabric dynamic displays. **a** Reflection spectra of the thermochromic fabric at the temperature of 25 °C

(dark green curve) and 45 °C (light green curve), respectively. **b** Relative colorimetric response changes over 10,000 thermal cycles between 25 °C and 45 °C. **c** Thermochromic fabric displaying numbers from 0 to 9, with color change temperature of 55 °C (scale bar: 3 cm). Credit: *Frontiers of Optoelectronics* (2022). DOI: 10.1007/s12200-022-00042-3

Fibrous devices have attracted more and more research due to their unique one-dimensional morphological advantages such as flexibility, light weight and wearability.

In the past decade, a variety of functional fibrous devices have been developed, including conductive, energy harvesting and memory devices, sensors, actuators and lighting devices. Among them, color-changing fibers provide a new direction for the research of new contemporary information display and human-computer interaction due to their extensibility and programmability.

When the clothes people wear can change color and pattern instantly with the signal of external environment, it can not only enrich the aesthetics of the clothes themselves, but also establish the bridge of natural interaction between users and environment, and realize the timely display and perception of environmental information.

Researchers led by Prof. Guangming Tao at Huazhong University of Science and Technology (HUST), China have been dedicated to research in the field of functional fibers. Prof. Tao's team has proposed a wet spinning process that can produce a variety of color reversible thermochromic fibers on a large scale, and its excellent mechanical properties and weaveability can be used to produce colorful fabric displays in everyday clothing.

To demonstrate the application of these fibers, dynamic colored display fabric with QR code was prepared and the color-changeable QR code was successfully recognized, which may find application in [social contact](#), [information security](#), identification, shopping and electronic payment. It will provide more possibilities for the Internet of Things and wearable [human-computer interaction](#) interface. The work was published in *Frontiers of Optoelectronics*.

More information: Pan Li et al, Flexible thermochromic fabrics enabling dynamic colored display, *Frontiers of Optoelectronics* (2022). [DOI: 10.1007/s12200-022-00042-3](https://doi.org/10.1007/s12200-022-00042-3)

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