



# LOOK AGAIN...

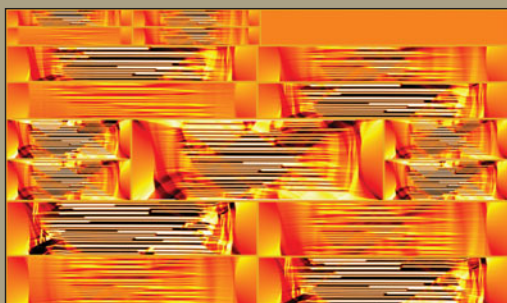
*Just for Fun!*

See if you can find the 8 differences in each set of images.

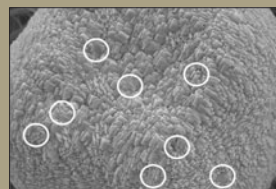
## Numerical simulation of stretched sheets of liquid-crystal elastomer

This is a numerical simulation of a sheet of liquid-crystal elastomer, clamped at both lateral sides, stretched along the horizontal direction. The aim was to show the strong coupling between deformation and nematic order of the liquid crystal. Upon stretching the elastomer, nematic mesogen molecules in the matrix—initially oriented vertically—rotate and align with the maximum (horizontal) stretch direction. The image combines pictures representing different stretching levels of the sample and the colors represent values of the cosine of the angle that the mesogens form with the horizontal. Due to the presence of the lateral clamps, a non-uniform deformation field develops during the test and gives rise to the peculiar stripe pattern.

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February 2012 answer key



Images on the top were submitted to the Materials Research Society "Science as Art" competition. Images on the bottom were modified in Adobe Photoshop for this "Look Again" activity.

## Dislocation discotheque

This electron channeling contrast image shows threading dislocations in a *c*-plane orientated, 1.6  $\mu\text{m}$ -thick GaN thin film grown by metal-organic chemical vapor deposition. Electron channeling contrast imaging is a rapid, nondestructive technique useful for detecting and identifying defects, for example, in semiconductors. The presented image has a width of  $\sim 8 \mu\text{m}$ . The artistic impression of channeling electrons was generated by combining displacement mapping, three-dimensional rendering, and two-dimensional compositing techniques.

**Naresh K. Gunasekar**, University of Strathclyde, UK, and **Mark Burns**, City of Glasgow College



Answers will be in the August 2012 issue.