



# LOOK AGAIN... LOOK AGAIN...

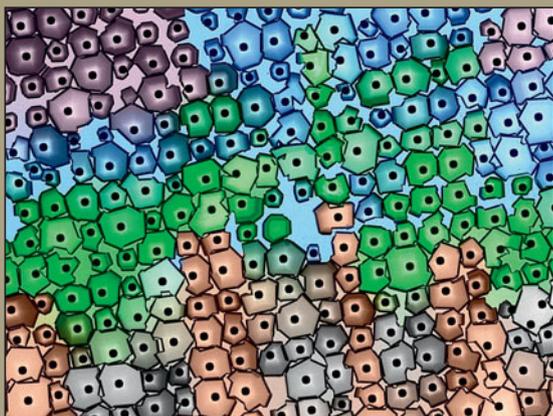
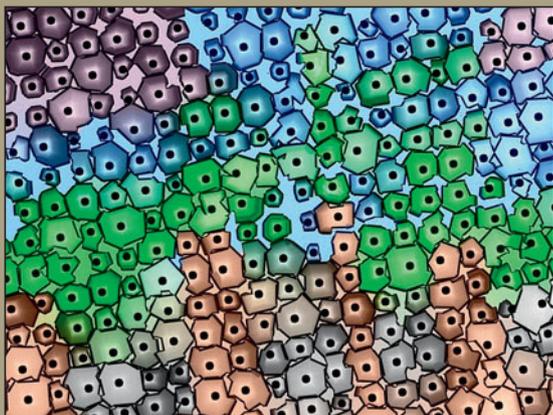
*Just for Fun!*

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

## Nanoscale LEGO puzzle

Optical image (false colored) of an array of metal-coated silicon pyramidal pits, made by anisotropic wet etching of silicon. A thin metal (gold) film is coated onto silicon pits with minimal adhesion that enables one to peel off the sharp metal tips. The interplay of the metal adhesion to the surface and cohesion energy leads to an interesting and beautiful broken pattern. The gradient of shades observed is due to the varying reflection from the metal film as it cracks and folds. Interestingly, the image resembles a LEGO puzzle and also poses an optical illusion. Although the silicon pyramidal pits (seen as periodically spaced dark spots) are equally spaced, they seem to be randomly spaced due to the overlaid metal crack pattern. Technologically, the metal tips fabricated by this method have been used in two-dimensional dip-pen nanolithography for writing various molecular structures on surfaces.

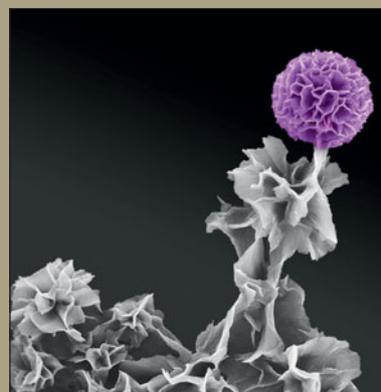
Radha Boya, Shu He, and Chad Mirkin, Northwestern University



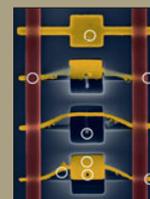
## Flower

Scanning electron microscope image of a thin-sheet network composed of doped aniline oligomers. The aggregated sheets in the upper right corner form a cluster that mimics the look of a flower, whereas other flexible sheets represent leaves and stems. The background and the “leaves” were kept in black and white to give prominence to the beauty and brightness of the “flower.” Scientifically, this morphology combines high surface area and electrical conductivity, rendering it ideal for organic supercapacitors and sensors.

Yue Wang, University of California–Los Angeles



October 2014 answer key



The answers will be in the February 2015 issue.

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.