The Math Colloquium
Department of Mathematics
San José State University

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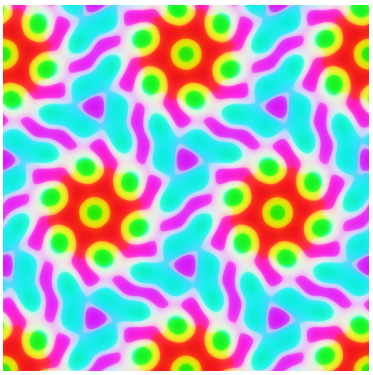
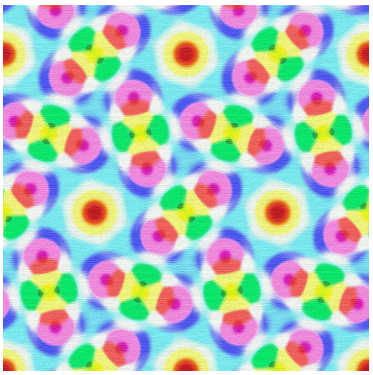
Undercover Symmetry

FEBRUARY 13, 2013, MH320

Abstract: Spend some time with the images below, which, according to the usual classification, have exactly the same symmetry type. Something seems different about the right-hand image: Why do the yellow/pink bowties seem to have mirror symmetry, which are not symmetries of the pattern as a whole? Why are they set at such strange angles relative to the orientation of the grid of red dots? These strange features led me to discover new types of symmetry in wallpaper patterns, with unexpected connections to such things as eigenvalues of a Laplacian and the length spectra of orbifolds.

Background: Students can follow the talk with a good understanding of calculus; knowledge of complex numbers will also be helpful.





SNACKS 2:30 IN MH331B
TALK 3 PM

FOR MORE INFORMATION, SEE:

`www.math.sjsu.edu/~hsu/colloq/`

About the speaker: Frank Farris has taught at Santa Clara since 1984. While visiting Carleton College in Fall 2011, he taught *Creating Symmetry*, which led to an exhibition of his mathematical art that has since traveled to the Univ. of Minnesota, the Univ. of St. Thomas, and Pomona College.