

**Undergraduate Math Club
Winter 2005
2nd floor Nesbitt Common Room
March 17, 4:10-5:00pm
(free pizza and pop, as always)**

Symmetry patterns in the plane

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Abstract

Planar repeating patterns (without gaps or overlaps) have long been used in art and architecture. If we ignore the actual pattern, but study instead the way the pattern is repeating itself to tile the plane (the symmetry group of the pattern), we discover that there are exactly seventeen distinct symmetry groups. This fact, known to the Alhambra Moors for at least eight centuries, was rediscovered in the Western world at the end of the 19th century.

We will use Escher prints to illustrate each of the possible seventeen plane symmetry groups and explain their connection to orbifolds. We will also sketch a proof of their classification (following Conway and Thurston).