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Alan C. Newell*, 617 N. Santa Rita, Tucson, AZ 85721, and **Matt Pennybacker**
(pennybacker@math.arizona.edu), 617 N. Santa Rita, Tucson, AZ 85721. *The universal nature of Fibonacci patterns.*

In planar geometries with rotational symmetry, the natural pattern planform occurring near onset in systems with broken up-down symmetry is hexagonal. Under the same conditions, if the geometry is circular and the pattern gets laid down annulus by annulus so that the choice of each new pattern is strongly influenced by the bias of the previously formed pattern in the neighboring annulus, patterns with a fibonacci signature are preferred. We will explain why and suggest an experiment in fluid convection can mimic all the Fibonacci patterns one sees in the plant kingdom. (Received January 25, 2010)