ABSTRACT

Using two case studies, this talk will describe the role of symmetry-breaking bifurcations in pattern formation. Faraday waves are standing waves that form on the surface of a fluid that is subjected to a vibration. These wave patterns can take on a wide variety of beautiful forms, the nature of which depend on the frequency content of the periodic forcing function. Turing patterns were proposed in the setting of reaction-diffusion systems, and they involve a simple mechanism that is often invoked to explain the appearance of regularly spaced spot and stripe patterns that arise naturally in the environment.