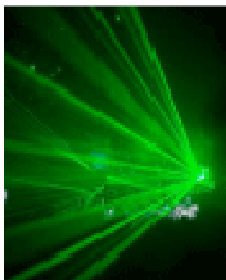


Spontaneous Rhythms in Nature & Technology

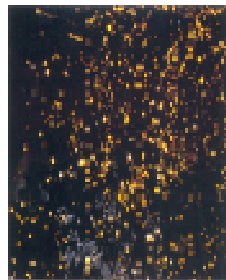
Kurt Wiesenfeld, Georgia Tech

Rhythms abound in the natural world. Rhythmic coordination is commonplace, and can be crucial: the beating cells in our hearts must synchronize precisely ... or else! But too much coordination can be just as bad: seizures in the brain can occur as a result of abnormally high levels of synchronous activity in populations of neurons.

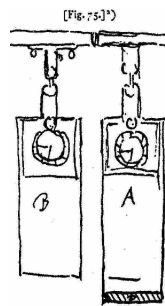
Examples of spontaneous synchronization are found in every branch of science – from the spectacular nighttime lightshows of firefly swarms to the synchronization of the pendulum clocks. Researchers the world over are trying to understand how coordinated rhythms arise and trying to discover ways to control them. An array of applications awaits: faster computers, brighter lasers, collision-avoiding cars; new strategies for treating heart and brain disorders; even an end to the devastation of periodic locust swarms.



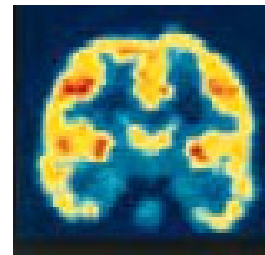
Lasers



Fireflies



Clocks



Brain