

Control of Stimulated Wave Trains in the Belousov-Zhabotinsky

Spiral waves are an origin of the most dangerous cardiac arrhythmia leading to fibrillation and sudden death. It is shown that a high-frequency wave train can induce a drift of free spiral waves until they annihilate at the boundary. Elimination of spiral waves by using wave train is also demonstrated in the Belousov-Zhabotinsky (BZ) reaction but lack of the control of the wave period. We present a method to generate and control a train of excitation waves in the BZ reaction. A droplet of 2.5M sulfuric acid (10 μ l) was used as the wave source while the wave period can be controlled by setting the local temperature at the source location. When the local temperature is increased from 22 to 37oC, the wave period decreases from 4.9 to 2.75 minutes when the bulk temperature is 22oC.

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