Interacting spiral waves in excitable media

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We have investigated the interaction of two spiral waves with opposite chirality in excitable media. The numerical simulations are performed using the three-component Oregonator model. Depending on the parameters, several qualitatively different kinds of behaviour have been observed, including a drifting stable double spiral [1,2], the displacement of one spiral wave due to a symmentry-breaking instability [2,3,4,5], and the formation of master-slave pairs [6].

In addition, we investigated the collision of two spiral waves that drift towards each other along a plane Neumann boundary. Depending on their phase difference, they can either form a bound state detaching from the Neumann boundary, or one spiral moves around the other and both continue to drift along the boundary in the same direction as before the collision.

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