非線型科学 コロキウム
Nonlinear Science Colloquium

講演者： 西浦廉政/北海道大学大学院電子科学研究所
Yasumasa Nishiura, RIES Hokkaido University

講演題目： 散逸系粒子解の強い相互作用をめぐって
Strong interactions for dissipative solitons

Spatially localized patterns are ubiquitous such as chemical blobs, discharge patterns, morphological spot, and binary convection cells. When they are moving in space, it is unavoidable that they collide each other.and the generic manner of collision becomes oblique. Unlike the solitons of conservative systems, there are much more variety of outputs after collisions in dissipative systems, in fact, repulsion, annihilation, coalescence, and splitting are observed depending on the parameters. Moreover, for oblique case, it also depends on the incident angle. In order to understand the complicated transient collisional process of traveling spots, it is imperative that we have to overcome the difficulty of large deformation at collision. A new approach is presented to clarify a backbone structure behind those dynamics. A key ingredient lies in a hidden network of unstable solutions called scattors, which plays a crucial role to understand the input-output relation for collisional process. A remarkable thing is that there appears a time-periodic rotational motion as a scattor for oblique collision. This approach is also useful to understand the dynamics of traveling spots in heterogeneois media. This is a joint work with T.Teramoto, K.-I.Ueda, Yuan Xiaohui, and K.Suzuki.

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