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random 등 -에 따른 파동의 전파 양상에 대해 연구하였으며, 특히 나선 문양의 붕괴에 대해 살펴 보았다. 또한, 요소들간에 시간 지연이 있는 경우의 효과를 보았다.

F-P030 **On the coupled chaotic bistable systems** Hwa-Kyun Park,H.T.Moon The dynamics of coupled chaotic bistable systems including multiple saddle points are studied. Size instability destroy the synchronization and the domain structure form spontaneously. We find that each domains show two types of behavior: the amplitude death and unsteady motion near the saddle points due to multiple time scales of local dynamics. The statistical natures of domain length are studied and explained using space mapping approach. The results are tested for many chaotic bistable systems such as Lorenz,Chua, and Dufifing oscillators.

F-P031 **Dynamical Temperature in momentum-conserved Hamiltonian Mean field systems** 정재운, 문희태(KAIST) We present a dynamical approach for measuring the temperature of a momentum-conserved Hamiltonian systems in the microcanonical ensemble of thermodynamics. In particular, we study the temperature of a Hamiltonian mean field system, which is a system of N fully coupled classical particles and shows a second order phase transition. And we study if the new-defined temperature can be a good thermodynamic variable in a system with a finite degree of freedom.

F-P032 **Sandpiles on the small world network** 조항현,문희태(KAIST) 고생물의 화석에서 관찰되는 생물종 수의 변화, 리히터 등의 학자들에 의해 개발된 지진 규모, 모래를 쌓을 때 관찰되는 사태(avalanche) 등을 이해할 수 있는 도구로서의 SOC(self-organized criticality)가 연구되어 왔다. 또한 regular lattice와 random graphs의 중간 형태인 small world network가 제안된 이후 이 연결망을 분석적으로 이해하기 위한 연구가 이루어지고 있다. 우리는 small world network 위의 모래쌓기(sandpile)를 컴퓨터로 시늉내어 그 안에 숨어있는 물리를 밝혀내려고 한다.

F-P033 **Experimental observation of synchronization of in-phase orbits in unidirectionally coupled diode resonator** 김영태,김영준,이원경(아주대학교),김상윤(강원대학교) Two identical diode resonators are unidirectionally coupled for studying synchronization of in-phase orbits. Diode resonator is a well-known circuit for demonstrating chaos as well as various periodic motions by varying a control parameter. Coupling strength of the coupled circuits could be changed using a feedback amplifier. Periodic orbits of the response system became successively in-phase synchronized with those of the drive system as coupling strength is increased at the fixed control parameter. Experimental results seem to follow the theoretical results on synchronization of dissipatively coupled one-dimensional quadratic maps. Furthermore, we had observed chaos synchronization above the critical control parameter. Such in-phase synchronization showed a hysteresis depending on the sweeping direction of the coupling constant, which was not expected in theoretical study of the coupled maps. In addition, fine structures of synchronization are different from theoretical results from the coupled maps.

F-P034 **Global Effects of The Riddling Bifurcations in Coupled Chaotic Systems** 임우창, 김상윤 (강원대) We consider riddling bifurcations in coupled chaotic systems with invariant subspaces. Through a riddling bifurcation, a first periodic saddle, embedded in the chaotic attractor on an ivariant subspace, becomes transversely unstable, and then the chaotic attractor loses its asymptotic