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Relaxation Dynamics of Spatiotemporal Chaos in the Nematic Liquid Crystal[1] FAHRUDIN NUGROHO, TATSUHIRO UEKI, YOSHIKI HIDAKA, SHOICHI KAI, Department of Applied Quantum Physics and Nuclear Engineering, Graduate School of Engineering, Kyushu University, Fukuoka 819-0395, Japan — We are working on the electroconvection of nematic liquid crystals, in which a kind of spatiotemporal chaos called as a soft-mode turbulence (SMT) is observed. The SMT is caused by the nonlinear interaction between the convective modes and the Nambu–Goldstone (NG) modes. By applying an external magnetic field $\mathbf{H}$, the NG mode is suppressed and an ordered pattern can be observed. By removing the suppression effect the ordered state relax to its original SMT pattern. We revealed two types of instability govern the relaxation process: the zigzag instability and the free rotation of wavevector $\mathbf{q}(\mathbf{r})$.

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