Joint Condensed Matter

and Center for Soft Matter and

Biological Physics Seminar

In Person and Virtual

Jason Czak

(Physics, Virginia Tech)

"Creating Novel Patterns with Spatially Localized Perturbations in Chaotic Systems "

Monday, December 6, 2021

4:00pm – 5:00pm

In Person: 304 Robeson Hall

Zoom Link: https://virginiatech.zoom.us/j/87418531850

Meeting ID: 849 1853 1850

In attempts to manage spatio-temporal chaos in spatially extended systems, these systems are often subjected to protocols that perturb them as a whole and stabilize globally a new dynamic regime, as for example a uniform steady state. We show that selectively perturbing only part of a system can generate space-time patterns that are not observed when controlling the whole system. Depending on the protocol used, these new patterns can emerge either in the perturbed or the unperturbed region. Specifically, we use a spatially localized time-delayed feedback scheme to perturb a chaotic state of a system to create novel periodic patterns within a region of the system.

COLLEGE OF SCIENCE
PHYSICS
VIRGINIA TECH