

# Institute Lecture

## Spatially Localized Structures: Experiments, Theory and Numerics

**Professor Edgar Knobloch**  
**Professor of Physics**  
**University of California at Berkeley**

**11<sup>th</sup> July 2018, Time: 6:15 PM, Venue: LH-17**



### Abstract

Spatially localized structures arise frequently in driven dissipative systems. In this lecture, I will describe a number of examples from different physical systems, followed by a discussion of the basic ideas behind the phenomenon of nonlinear self-localization that is responsible for their existence. I will illustrate these ideas using a simple phenomenological model and explain why the qualitative predictions of this model help us understand the properties of much more complicated systems exhibiting spatial localization, including those arising in fluid mechanics.

### About the speaker

Edgar Knobloch is a Professor of Physics at the University of California at Berkeley. He was born in Prague, and received his B.A. degree from the University of Cambridge in Mathematics and his PhD degree from Harvard University in Astronomy. He was a research fellow at St John's College, Cambridge, and a Junior Fellow of the Harvard Society of Fellows prior to joining the Berkeley physics department. His interests range from bifurcation theory and nonlinear dynamics to pattern formation, fluid dynamics and astrophysics. In recent years, he has focused on the properties of rapidly rotating flows and other fluid problems with strong restraints, as well as on spatial localization in dissipative systems -- the topic of this lecture.

He is the recipient of honorary doctorates from Universite Paul Sabatier, Toulouse, France and Universidad Politecnica de Madrid, Madrid, Spain.

Tea at 6.00 PM

All interested are welcome.

S. Ganesh  
Dean of Research and Development, IIT Kanpur