



Prof. Dr. Elke Scheer
Department of Physics
University of Konstanz

Watching microscale drumheads at play: insights into nonlinear dynamics

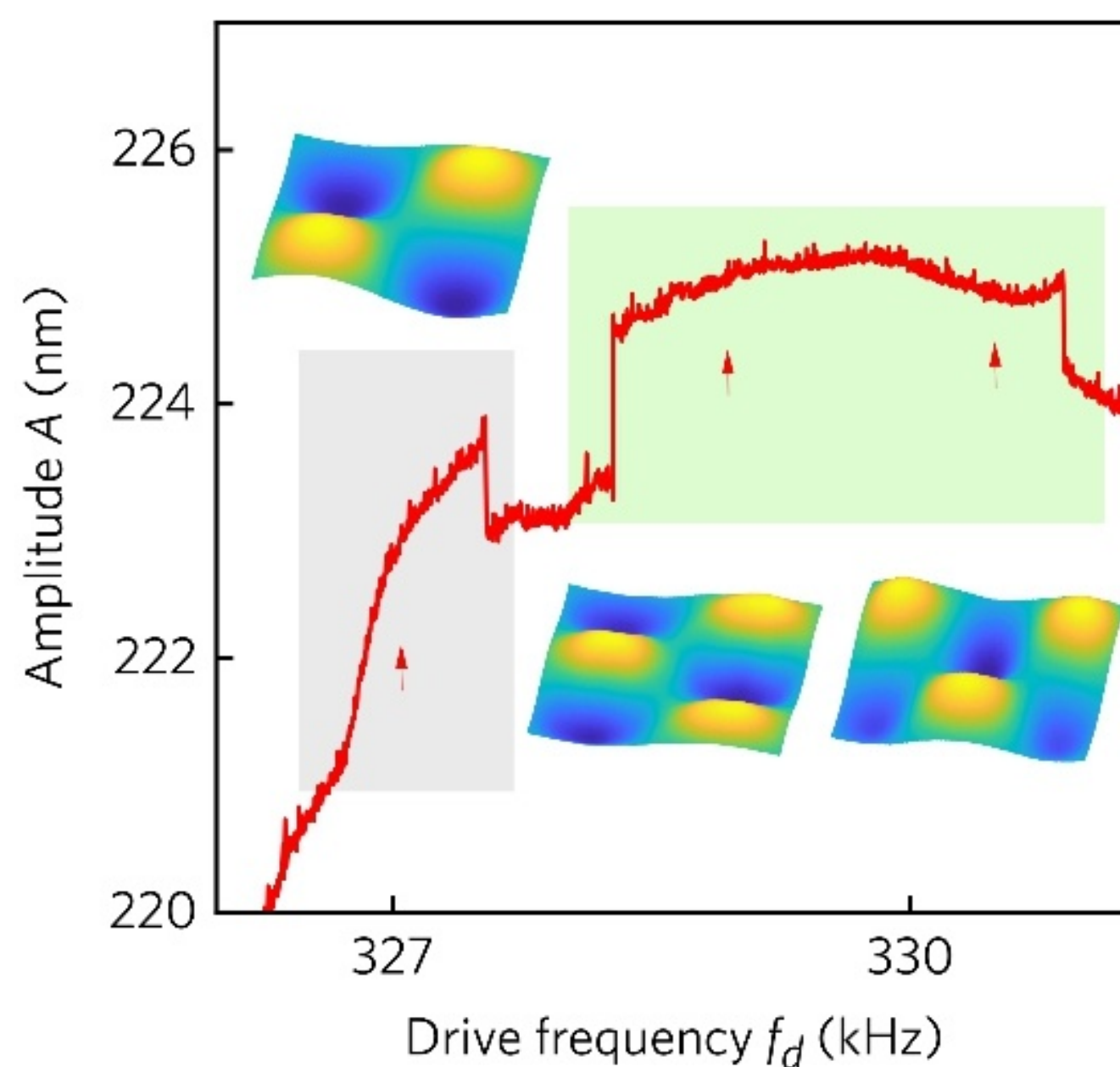
physikalisches

Mo. 19.6.23
16:00 Uhr
Ort: H34

Micronscale membrane resonators are ideal model systems to investigate nonlinear dynamics, since information detected in the time domain as well as spatial information can be directly obtained optically.

From these measurements we have access to the spatially resolved material properties such as Young's modulus or strain. Strongly driven siliconnitride membrane resonators exhibit unusual resonance curves and a complex spatial distribution of the vibration state.

We discuss the experimental observations and possible mechanisms underlying the observations.



Zoom into a resonance curve of the groundmode of a rectangular SiN nanomembrane, showing instantaneous jumps of the amplitude. Insets: Spatial deflection pattern captured at the frequencies marked by arrows.