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**Preparing for Surprise under Global Change:
Resilience, Tipping points, and Early-Warnings**

Evidence is increasing that large-scale abrupt changes in ecosystems, fisheries, oceanic circulation patterns, or even human physiology are examples of catastrophic transitions between different system states. Such abrupt changes are typically referred to as tipping points. Recent theoretical findings suggest that distinct properties tend to rule system dynamics prior to tipping points. When quantified, these properties may be more generically used as indicators of resilience. As long-term data become increasingly available and experimental approaches are improving, the challenge has been to apply our theoretical metrics on ecological dynamics to anticipate, prepare, or navigate away from tipping points. In this talk, I will present how we can quantify resilience and detect tipping points highlighting examples from ecological and climate systems.