An Overview of Logics in Dynamical Systems: The Axiomatization Problem

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A *discrete-time dynamical system* is typically represented as a pair $\langle X, f \rangle$, where X denotes the state space and $f : X \to X$ is a transition function describing the systems evolution over time. The state space X often carries additional mathematical structure, such as an order, topology, metric, or measure, that is preserved by f.

This talk will focus on two expressive logical frameworks for reasoning about such systems: *Dynamic Topological Logic* and its variant, *Intuitionistic Temporal Logic*. Both provide formal languages for capturing temporal and spatial properties of dynamical systems. I will survey recent results and techniques in the field, with particular emphasis on the axiomatization problem for these logics.