

Abstract for an Invited Paper
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**Unstable Periodic Orbits as a Unifying Principle in the Presentation of Dynamical Systems in the Undergraduate
Physics Curriculum¹**
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Unstable periodic orbits are a ubiquitous feature of a wide variety of dynamical systems that exhibit behavior that may be characterized as chaotic, complex or turbulent. In physics pedagogy, they may be used as a bridge to the understanding of symbolic dynamics, topological entropy and pressure, and the dynamical zeta function formalism. As high-performance scientific computation makes the application of this methodology possible to ever-larger dynamical systems, this methodology emerges as an effective way to introduce students – from secondary school, to undergraduate education, to graduate education – to advanced concepts in the theory of dynamical systems.

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