

Abstract Submitted  
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**The spectral signature of extreme mass ratio inspirals** STEVE DRASCO, Jet Propulsion Laboratory, California Institute of Technology — I describe the spectral signature of adiabatic inspirals of stellar mass compact objects into much larger rotating black holes. Simulated spectral snapshots of these systems (valid for a fraction of expected observation times, but for many orbit cycles) are generally composed of lines that can be grouped into around ten families defined by fixing two of the orbit's three integer frequency multipliers. These mode families are fairly easy to predict from the geometry of the orbit, and inspiral simulations suggest that they are essentially fixed throughout the course of an inspiral. A hypothetical detection algorithm that tracks mode families dominating the first twelve hours of an inspiral would capture 98% of the total power over the remaining three years before merger. I will discuss the observation potential for simplistic detection schemes which are designed around these results and which are capable of recovering the adiabatic evolution of the inspiral's orbit geometry.

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