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This talk is a continuation of Plaut's earlier talk, and attending that talk is recommended in order to see the basic construction. In this talk I will describe what is known in the non-geodesic case. In general, Homotopy Critical values come in four flavors (v.s. only one for geodesic spaces), and the connection to the topology of the underlying space is more tenuous without additional assumptions, specifically a notion of "refinability". I will discuss several examples to illustrate this and present what is known about the Homotopy Critical Spectrum for resistance metrics, especially the question of refinability of resistance metrics. I will also discuss some results regarding critical values and topological structure of Gromov-Hausdorff limits of general metric spaces, which include many metric fractals that arise in applications. (Received June 28, 2011)