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Nageswari Shanmugalingam. *Geometry of the Prime End Boundary and the Dirichlet Problem
for bounded domains in metric measure spaces.*

First introduced in the complex plane by Caratheodory, Prime Ends provide a way to define the boundary of a bounded domain such that its closure retains many properties intrinsic to the structure of the domain itself rather than its ambient space. For example, the Prime End closure of the Slit Disk in \mathbb{C} retains the structure imposed by the 'slit,' while the normal metric closure ignores it. Using the definition given by Shanmugalingam, Bjorn, Bjorn and Adamowicz, we may speak of Prime Ends in more general metric spaces. Here we define and study the Dirichlet Problem with Prime End Boundary data on bounded domains, showing that under certain assumptions we may construct solutions using the Perron Method. (Received January 27, 2014)