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5800 Bay Shore Road, Sarasota, FL 34243. *Inverse problems for metric graphs and heat content.*

Metric graphs have found applications in a wide variety of contexts, both inside and outside of mathematics. The literature on metric graphs includes a well-developed spectral theory with a number of associated inverse spectral results. We investigate a collection of related problems involving the heat content for metric graphs. In particular, we prove that there are isospectral nonisometric metric graphs which are distinguished by their heat content. In addition, we establish conditions under which it is possible to determine a metric graph using heat content. (Received August 13, 2013)