



## The Vertice-Centered Metric Topologies Generated From the Connected Undirected Graphs

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### Abstract

Graph theory is used as a way of specifying relationships among a collection of items. As a result of this, the theory is important for many fields from science to liberal arts. Recently, topological structure of the graphs is an interesting research topic. In this paper, we study topological structures of the connected undirected graphs. We firstly define a metric on a connected undirected graph using the distance between vertices of the graph. We generate a vertice-centered metric topology on vertices set of a connected undirected graph using this metric. Moreover, we study some properties of this topology. Finally, the vertice-centered metric topologies on vertices set of certain graphs are studied.

**Keywords:** Graph theory; metric topology of a graph; metric on a graph.