

Title of the Talk: Smooth Graphs

Abstract of the Talk:

The notion of smoothness was introduced originally in the context of step systems on connected graphs. Smoothness turns out to be a very general property of the metrics (in a metric space) defined by a five-point condition. In this talk, we restrict the study of smoothness among connected graphs. In graphs, smoothness is closely related to the geodesic convexity of point-shadows. We show that smoothness is preserved by isometric subgraphs, both Cartesian and strong graph products, and gated amalgams. As a consequence, median graphs and many of their generalizations are smooth. We also show that ℓ_1 -graphs are smooth. On the other hand, an induced $K_{2,3}$ or $K_{1,1,3}$ is incompatible with smoothness. Finally, we characterize smooth graphs among the Ptolemaic graphs as precisely the $K_{1,1,3}$ -free Ptolemaic graphs.

