Orthomorphism Graphs of Groups

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Abstract: Let G be a group. A bijection $\theta : G \to G$ is called an orthomorphism of G if the map $\phi_\theta : x \mapsto x^{-1}\theta(x)$ is also a bijection on G. Orthomorphism which fixes the identity element of the group is called normalized orthomorphism. Two orthomorphism θ_1 and θ_2 are called orthogonal if $\theta_1\theta_2^{-1}$ is also an orthomorphism of G. A graph in which vertices are normalized orthomorphisms of G and adjacency being synonymous with orthogonality is called orthomorphism graph of G denoted as $Orth(G)$. In this talk we will discuss the results and problems related to the orthomorphism graph of finite groups.