

Regular representations of finite groups via hypergraphs

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Given a regular action of a finite group G on a set V , we ask the question of the existence of a hypergraph $\mathcal{H} = (V, \mathcal{B})$ on the set V whose *full* automorphism group $Aut(\mathcal{H})$ is the group G in its regular action. Using results on graphical and digraphical regular representations (Godsil, Watkins, Babai), we show the existence of a desired hypergraph for all but a finite list of finite groups.