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## WALK-REGULAR GRAPHS THAT ARE NOT VERTEX-TRANSITIVE

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**Abstract of Talk:** We explore relationships between the geometric structure of finite graphs and the linear algebra structure of their associated adjacency matrix. We do this by examining regular graphs which are walk-regular but not vertex-transitive, focusing on graphs with a small number of distinct eigenvalues. We examine the eigenvectors, eigenvalues and cycle structure of graphs with four or five eigenvalues. Seidel switching is used to create new graphs. This is joint work with Alan LaMielle, under the supervision of Ken W. Smith.