

On sesqui-regular graphs with a fixed smallest eigenvalue and large valency

Speaker: Jack Koolen (USTC, China)

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A graph is *sesqui-regular* if it is regular and there exists a constant c such every two distinct non-adjacent vertices have either 0 or c common neighbours. We study these graphs with a valency much larger than the absolute value of its smallest eigenvalue θ_{\min} .

If c is large compared to $|\theta_{\min}|$, then the graph is closely related to strongly regular graphs. On the other hand, it is easy to construct sesqui-regular graphs with unbounded diameter with fixed smallest eigenvalue $-m$ where m is integer and c much smaller than m .

This talk is based on joint work with Brhane Gebremichel, Jaeyoung Yang, Qian Qian Yang, Masood Ur Rehman, Hongjun Ge.