

## **A spectral characterization for the $s$ -extension of the square grid graphs**

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In this talk, I will discuss our recent result which asserts that for integers  $s \geq 2$ ,  $t \geq 1$ , any co-edge-regular graph which is cospectral with the  $s$ -clique extension of the  $t \times t$ -grid is the  $s$ -clique extension of the  $t \times t$ -grid, if  $t$  is large enough. Gavriilyuk and Koolen used a weaker version of this result to show that the Grassmann graph  $J_q(2D, D)$  is characterized by its intersection array as a distance-regular graph, if  $D$  is large enough.

Keywords: Clique extensions, Graph eigenvalues, Interlacing, Co-edge-regular graphs, Walk-regular graphs, Spectral characterizations