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**KAREN MEAGHER**, University of Regina

*Graphs that have a weighted adjacency matrix with spectrum  $\{\lambda_1^{n-2}, \lambda_2^2\}$*

In this talk I will characterize the graphs which have an edge weighted adjacency matrix belonging to the class of  $n \times n$  involutions with spectrum equal to  $\{\lambda_1^{n-2}, \lambda_2^2\}$  for some  $\lambda_1$  and some  $\lambda_2$ . The connected graphs turn out to be the cographs constructed as the join of at least two unions of pairs of complete graphs, and possibly joined with one other complete graph.