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Cooling Cartesian and lexicographic products of graphs

The cooling number of a graph measures the speed at which a slow-moving influence or contagion spreads on a graph. In this talk, we investigate the cooling number of two classical graph products: the Cartesian product and the lexicographic product. For the Cartesian product, we make use of isometric subgraphs of the factor graphs to determine families of graphs whose Cartesian products have largest possible cooling number in terms of their diameter. For the lexicographic product, we determine upper and lower bounds on the cooling number in terms of the cooling numbers of the factor graphs. This is joint work with Anthony Bonato, Caleb Jones, Trent Marbach, and Teddy Mishura.