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Some applications of covering matrices

Joint work with Assaf Rinot and Šárka Stejskalová

Covering matrices were introduced by Matteo Viale in his proof that the Singular Cardinals Hypothesis follows from the Proper Forcing Axiom, and they are a useful tool when attempting to propagate certain combinatorial statements through singular cardinals. In this talk, we present three recent applications of covering matrices. The first concerns the effect of the Guessing Model Principle on cardinal arithmetic. In the second, building on work of Chen-Mertens and Szepietycki, we show that the failure of SCH entails the existence of a Fréchet, α_1 -space whose G_δ -modification has large tightness. In the third, we prove a result about the effect of approachability on compactness for coloring numbers of graphs.