Codes, coverings, and football pools
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Coding theory is the study of reliable communication over unreliable channels, using a discrete model. One classical question in coding theory concerns a packing problem: what is the maximum number of spheres of radius $t$ that can fit into a finite $n$-dimensional space? On the flip side is a covering problem: what is the minimum number of spheres of a fixed radius needed to cover the space? This second question shares an interesting connection to a game called a football (soccer) pool.

In this talk I will give a historical perspective on the mathematical study of error-correcting codes and covering codes, and reveal a winning configuration for a particular football pool game. It turns out that this solution predated the equivalent mathematical discovery! I'll also discuss more recent approaches to finding bounds for the covering problem for a variety of parameters.

Lunch will be provided for colloquium participants after the talk.