

A **Salem set** is a set of Hausdorff dimension α for some $0 < \alpha < n$ that supports a measure with optimal pointwise Fourier decay. We will discuss the construction of a explicit Salem sets in \mathbb{R}^n of arbitrary dimension. This construction uses tools from algebraic number theory. We will end with a brief discussion of possible future applications of algebraic number theory to problems in Euclidean harmonic analysis. This is joint work with Kyle Hambrook.