

# Restricted Isometry Property in Compressed Sensing of Discrete Lines

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## **Abstract**

In this talk we will discuss in detail the properties of the measurement matrix used in our model for recovery of unions of discrete lines via Compressed Sensing.

The elements of this matrix can be explicitly evaluated, and its properties depend strongly on the properties of the unions of discrete lines and their discrete Fourier transforms. However, finding a sampling scheme, which will be successful in practice, and proving its effectiveness in theory, is not a trivial task. We will discuss the possible solutions of this problem. For a specific sampling scheme we can prove that the Restricted Isometry Property holds with a certain probability and a constant, which both improve asymptotically as we increase the dimension of the signals.