

## Group Seminar

Applied Discrete Mathematics and Cryptography

### Growth, Incidence Bounds and Affine Group Energy

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#### **Abstract**

Incidence Geometry, and in particular the Szemerédi-Trotter Theorem, has a long history of applications to sum-product type results. This talk will discuss how viewing lines as elements of the affine group and studying their energy can lead to improved incidence bounds in certain (asymmetric) settings, and how these new incidence bounds can be applied to prove new results in sum-product theory.