

# Infinite configurations in sets with positive density

Szemerédi's celebrated theorem states that any subset of the natural numbers with positive upper density contains arbitrarily long (but finite) arithmetic progressions. On the other hand, there are sets with positive upper density but which do not contain an infinite arithmetic progression. Nevertheless, there are infinite configurations that any set with positive density must contain. I will briefly survey this topic, mention some recent results and some still open conjectures.