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Patterns in primes and nilpotent groups

A classical theorem of Dirichlet establishes the existence of infinitely many primes in arithmetic progressions, so long as there are no local obstructions. In 2006 Green and Tao set up a programme for proving a vast generalization of this theorem (falling just short of proving the twin prime conjecture). They conjectured a relation between the existence of linear patterns in primes and dynamics on nilmanifolds. In recent joint work with Green and Tao we completed the final step of this programme.