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Small Gaps between primes

It is believed that there should be infinitely many pairs of primes which differ by 2; this is the famous twin prime conjecture. More generally, it is believed that for every positive integer m there should be infinitely many sets of m primes, with each set contained in an interval of size roughly $m \log m$. Although proving these conjectures seems to be beyond our current techniques, recent progress has enabled us to obtain some partial results. We will introduce a refinement of the 'GPY sieve method' for studying these problems. This refinement will allow us to show (amongst other things) that $\liminf_n (p_{n+m} - p_n) < \infty$ for any integer m , and so there are infinitely many bounded length intervals containing m primes.