

LEMKE OLIVER AND SOUNDARARAJAN BIAS FOR CONSECUTIVE SUMS OF TWO SQUARES

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In a surprising recent work, Lemke Oliver and Soundararajan noticed how experimental data exhibits erratic distributions for consecutive pairs of primes in arithmetic progressions, and proposed a heuristic model based on the Hardy–Littlewood conjectures containing a large secondary term, which fits the data very well. In this talk, we study consecutive pairs of sums of squares in arithmetic progressions, and develop a similar heuristic model based on the Hardy–Littlewood conjecture for sums of squares, which also explain the biases in the experimental data.