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The pretentious Riemann Hypothesis and beyond

We give some insights into the "alternative approach" to analytic number theory being developed by Soundararajan and the speaker. For example we will motivate the original approach of Riemann to counting primes, and then, using simple ideas from a first complex analysis course, state a version of the Riemann Hypothesis that does not involve zeros of the Riemann zeta function, nor its analytic continuation. We discuss some aspects of the new approach, some of the most exciting recent developments, and the key role it has played in the recent resolution of the Erdos discrepancy problem.