

## **abstract**

MEMBERS SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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Following the brilliant insight of Riemann, that a good understanding of the distribution of prime numbers is equivalent to a good understanding of the location of zeros of pertinent L-functions, analytic number theory has traditionally centered on developing this point-of-view. The Riemann Hypothesis, that all the zeros "lie on the  $1/2$ -line", remains unproven, so researchers have many theorems bounding some aspect of the zeros close to the 1-line. These yield the proofs of many of the key results in the subject.

Given Riemann's equivalence, and the consequent goal to prove the Riemann Hypothesis, it has long seemed "obvious" that one should approach the subject by gaining a better and better understanding of the distribution of zeros. However is this really the correct way to proceed? Is it so obvious that this is the right way to gain an improved understanding of central issues concerning the distribution of primes? Recently Soundararajan and the speaker have shown that several of the key results in the subject can be proved more succinctly, arguably more easily, without reverting to a study of zeros of L-functions, using the notion of pretentiousness.

In this member's seminar we will explain what "pretentiousness" is, exhibit the depth of ideas we use, and show how various well-known results follow, as well as several new results.