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SMALL GAPS BETWEEN PRIMES

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Abstract

This talk will discuss recent joint work with Janos Pintz and Cem Yıldırım on small gaps between primes. A surprising result of our work is that if the primes are well distributed in arithmetic progressions then one can prove results not too far from the twin prime conjecture. For example, if the Elliott-Halberstam conjecture is true then there are infinitely many pairs of primes with difference 16 or less. Unconditionally we can prove a long-standing conjecture in the field: there are pairs of primes much closer together than the average distance between consecutive primes.

This work has had its share of media attention, and even generated a song on US public television. For me there has been three stages to this publicity: the enjoyment of small-time public fame for proving with Yıldırım the result three years ago, followed closely by the unenjoyable publicity when Granville and Soundararajan showed how the proof crashed, and lastly the redemption following the strange emergence of a new proof. After Wiles this may seem like standard procedure in mathematics, but I would not recommend it for the faint of heart. I will include at the end of the talk some media samples of this story.

Date: Tuesday, October 10, 2006

Time: 15:00

Place: Rektörlük Konferans Salonu

We thank the US National Committee of Mathematics for sponsoring Prof. Goldston's visit.