Hidden structure in the randomness of the prime number sequence?

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Abstract-

We report a rigorous theory to show the origin of the unexpected periodic behavior seen in the consecutive differences between prime numbers. We also check numerically our findings to ensure that they hold for finite sequences of primes, that would eventually appear in applications. Finally, our theory allows us to link with three different but important topics: the Hardy-Littlewood conjecture, the statistical mechanics of spin systems, and the celebrated Sierpinski fractal. (c) 2005 Elsevier B.V. All rights reserved.

Index Terms- prime numbers, fractals, spin systems

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