Philadelphia Area Number Theory Seminar

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Fine scale properties of sequences modulo 1

Abstract: Given a sequence of numbers, a key question one can ask is how is this sequence distributed? In particular, does the sequence exhibit any pseudo-random properties? (i.e., properties shared by random sequences). For example one can ask if the sequence is uniformly distributed modulo 1 (macroscopic scale), or if the pair correlation or gap distribution is Poissonian (fine scale). In this talk I will introduce these concepts, and discuss a set of examples where this behavior is fully understood. The techniques used are common tools in analytic number theory, and the question relates to problems in quantum chaos, and relates to the study of the zeros of the Riemann zeta function (although I will refrain from presenting my proof of RH...). This is joint work with Athanasios Sourmelidis and Nichlas Technau.

Wednesday, March 22, 2023
3–5 PM

Bryn Mawr College
Department of Mathematics
Park Science Center **328**

Informal refreshments at 3PM – Talk at 3:30PM