UTRGV

School of Mathematical and Statistical Sciences

Distinguished Colloquium Series

The distribution of reduced rationals in the unit interval

Alan Haynes

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Abstract

The main part of this talk will aim to answer the question, what is the expected value of the smallest denominator of a rational number in a randomly chosen interval of fixed radius? Along the way, we will provide a cautionary tale to explain classical results that demonstrate how similar "easy" questions about the distribution of reduced rationals end up being extremely difficult to solve. For the adventurous, we will give an "easy" reformulation of the Riemann hypothesis. For the sober-minded, we will also present several other open problems.

Short Bio of the Speaker

Alan Haynes received his PhD in 2006 from UT Austin. He held postdoctoral positions at Brandeis University and then in the UK, where he was a Heilbronn Research Fellow at the University of Bristol, a consultant for GCHQ, and an EPSRC Research Fellow at the University of York. He held a permanent position as a Reader at the University of York from 2013 until 2016, when he moved to the University of Houston. His research interests include topics in dynamical systems, probability theory, analytic number theory, Diophantine approximation, discrete geometry, tiling theory, and the mathematics of quasicrystals.

Date: Friday, March 10, 2023

Time: 1:45-2:45 pm CT

Location: EMAGC 2.206

Zoom: https://utrgv.zoom.us/j/89753298218

For further information or for special accommodations, please contact Dr. Alexey Glazyrin via email alexey.glazyrin@utrgv.edu and Dr. Oleg Musin via email oleg.musin@utrgv.edu