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THE CATHOLIC UNIVERSITY OF AMERICA
Washington, DC 20064

SEMINAR IN FUNCTIONAL ANALYSIS

AND RELATED AREAS

Wednesday, September 28, 2022

4:45 p.m. - 6:30 p.m. (including a coffee break)

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SPEAKER: Professor Neil Hindman
 Howard University

TITLE: Pairwise sums and products in $\mathbb{R}^+$
(Joint research with Maria-Romina Ivan and Imre Leaderwork with Vitaly Bergelson)

ABSTRACT: FS, FP, PS, and PP stand for finite sums, finite products, pairwise sums and pairwise products respectively, all without repetition. Sometime shortly after the big bang it was shown that if a semigroup $(S, \cdot)$ is finitely colored, there are a sequence $\langle x_n \rangle_{1 \le n < \infty}$ and a color class which contains $FP(\langle x_n \rangle_{1 \le n < \infty})$.
In 1999, Bergelson, Hindman, and Leader showed that if the real interval $(0, 1)$ is finitely colored and each color class is measurable or each color class has the property of Baire, then there are a sequence $\langle x_n \rangle_{1 \le n < \infty}$ and a color class which contains $FS(\langle x_n \rangle_{1 \le n < \infty}) \cup FP(\langle x_n \rangle_{1 \le n < \infty})$.
The first of our results that I will discuss shows that there is a finite coloring of the positive reals such that each color class is either open or countable (so is measurable and has the property of Baire) and if $\langle x_n \rangle_{1 \le n < \infty}$ is a sequence with $PS(\langle x_n \rangle_{1 \le n < \infty}) \cup PP(\langle x_n \rangle_{1 \le n < \infty})$ monochromatic, then either x_n approaches zero or xn approaches infinity.

The presentation will be given via Zoom. The corresponding link will be sent to everyone in advance.

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