Student Research Talks (StReeTs)

Department of Mathematics, George Mason University

Stability of Waves in a Nonlocal Diffusion Model

Zachary Richey
George Mason University

Abstract

We discuss the question of linear and nonlinear stability of the critical front in a variation of the Fisher-KPP equation that includes a nonlocal diffusion term. Based upon results for other models, we conjecture that the front is asymptotically stable in a weighted L^∞ space with algebraic decay rate $t^{-3/2}$. We detail our progress towards proving this conjecture using pointwise semigroup methods, including techniques such as perturbation methods, Laplace analysis, and Green's functions.

Vertex Operator Algebras: Finite Dimensional Cases and Conformal Blocks

George Andrews
George Mason University

Abstract

Vertex operator algebras are algebraic objects analogous to both commutative associative algebras with identity and Lie algebras. They provide a way of rigorously constructing a particular family of quantum field theories called rational conformal field theories. We construct the simplest class of examples of vertex operator algebras, namely the finite dimensional ones, and prove basic results on modules of these vertex operator algebras and spaces of conformal blocks associated to smooth projective curves.

Date: Friday April 29, 2022
Time: **Special Time** 2:00pm-3:20pm
Place: Expl 4106
Zoom: See https://streets-gmu.wikidot.com for Zoom link or scan below:

Pizza will be served!

For further information, please contact Tracey Oellerich or Aleyah Dawkins via email at toelleri@gmu.edu or adawkin@gmu.edu by Thursday.