Department of Mathematics
The Chinese University of Hong Kong

數學系
香港中文大學

Seminar

The Mathieu Differential Equation and Generalizations to Infinite Fractafolds

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Abstract

One of the most well-studied equations in ODE theory is the Mathieu differential equation. Because of the difficulty in finding closed-form solutions to this equation, it is often necessary to seek solutions via Fourier series by converting the equation into an infinite linear system of the Fourier coefficients. In this work we present results pertaining to the stability of this equation and convergence of solutions. Further, we provide a method to generalize the Mathieu differential equation to be defined on an infinite fractafold, with our main focus being the fractal blow-up of the Sierpinski gasket. We discuss methods for studying the stability of solutions to this fractal differential equation as well as the concerning properties of solutions.

Remarks:
1: Cornell University
2: Indiana University Bloomington
3: The University of Hong Kong

Date:	29 January 2019 (Tuesday)
Time:	11:00am – 12:00noon
Venue:	Room 222, Lady Shaw Building, The Chinese University of Hong Kong, Shatin

All are Welcome