

Analysis and Applications Seminar

Speaker: Dr. Jason Mireles-James

Title: Divergent series in dynamical systems theory: an illustrative example

Abstract: This talk will focus on a differential equation whose solution leads naturally to approximation by divergent series. The question of what exactly this means can be addressed using tools from Laplace/Borel transform theory. This will be a basic introductory talk, where I will try to introduce some useful ideas in the context of the concrete example. I'm primarily interested in bounding the errors associated with truncating the divergent series. Another important question is to understand the regularity properties of the function being approximated by the divergent series. Borel resummation and the Resurgence theory of Ecalle provide a powerful framework for studying these kinds of questions, and this talk is meant as a leisurely dip into that pool. While these ideas are important for a number of problems in my research, this will not be a research talk as such.