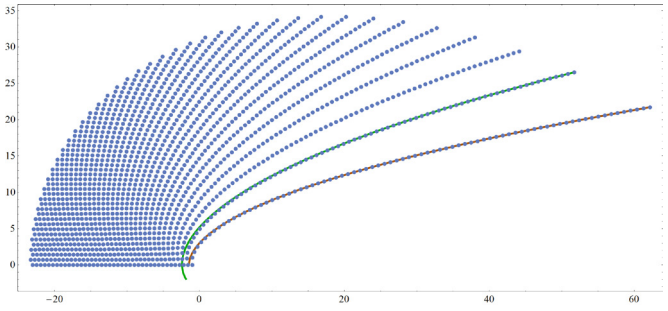
Karl Dilcher

Number Theory

Most of Dr. Dilcher's research can be described as "classical", dealing with mathematical objects that have often been of interest for decades. However, new methods make it worthwhile to take a fresh look at old objects, usually involving computer experimentation. The resulting theoretical investigations often lead to new and sometimes unexpected results.

Number Theory: Dr. Dilcher's research interests include prime numbers, factors of very large integers of special forms, and special sequences of numbers and polynomials. Some results have applications in combinatorics, such as lattice paths or binary partitions (representing integers as sums of powers of 2) along with generalizations. However, the main objective of this research is to try and shed some light on integers and sequences that have interesting and often mysterious properties.

Classical Analysis: A question that originated in Dr. Dilcher's research in number theory is: How are the roots of a polynomial or of a sequence of polynomials distributed? This has applications in various areas, such as approximation theory, graph theory, or number theory (Diophantine analysis). Related to this are questions of divisibility and irreducibility; these are topics at the intersection of analysis, algebra, and number theory. Some of Dr. Dilcher's studies involve special functions of mathematical physics, and more recently probabilistic methods have entered his research.



For more information, contact:

Dr. Karl Dilcher
Department of Mathematics and Staistics
Dalhousie University
(902) 494-3784, karl.dilcher@dal.ca

DALHOUSIE UNIVERSITY
Inspiring Minds