

COLLOQUIUM
UNIVERSITY OF PITTSBURGH
FRIDAY, SEPTEMBER 22, 2017

704 THACKERAY HALL

3:30 P.M.

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APPLICATIONS OF TAUBERIAN THEOREMS
TO COUNTING ARITHMETIC OBJECTS

ABSTRACT: Tauberian theorems are a class of results in complex analysis that relate Taylor series coefficients of meromorphic functions to their analytic properties. In the last couple of centuries these theorems have had fundamental applications in the theory of numbers, though mostly in the form of obtaining asymptotic formulae for the number of bounded terms of various special sequences of numbers, e.g., prime numbers up to a bound X . More recently, these complex analytic methods have been used to count "arithmetic object", such as rational points on algebraic varieties and orders in number fields. In this talk I will give an overview of the history of these idea starting with Riemann's treatise on the zeta function that now bears his name. At the end, time allowing, I will explain some recent works obtained in collaboration with Jamshid Derakhshan, Nathan Kaplan, Jake Marcinek, Daniel Loughran, Joseph Shalika, Sho Tanimoto, and Yuri Tschinkel.

Refreshments served at 3:00 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705