

**TITLE: LOCAL ZETA FUNCTIONS AND
MULTIVARIATE ASYMPTOTIC ANALYSIS
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A standard method in classical asymptotic analysis studies the behavior of a local zeta function in one complex variable in order to estimate the decay of an oscillatory integral with phase a single analytic function. On the other hand, the solution of interesting problems in analysis (over real or p -adic fields) often requires a good estimate for a uniform decay rate of an oscillatory integral in several variables, that is, one in which the phase is a linear combination of several functions. Multivariate asymptotic analysis is a set of tools that helps extend, in a natural way, the classical method, and enables one to address such problems. One important difference is, however, that the behavior of finitely many local zeta functions, each depending upon several complex variables, must be studied. A single zeta function is, in general, insufficient.

The talk will first discuss a few of the problems that motivate this work, and then illustrate how they can be solved by applying the techniques of this generalized asymptotic method.