

Colloquium
Michigan State University
Department of Statistics and Probability

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Asymptotics of Clustering Criteria for Smooth
Distributions

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10:20 a.m. - 11:10 a.m.
Refreshments 10:00am
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Abstract

We propose a clustering framework based on a criterion function, whose empirical version is an L-statistic with irregular weights comprising of a combination of heavily-trimmed sums and sample quantiles and develop the asymptotic theory.

As a consequence, we develop an asymptotic test for the presence of clusters in a given set of observations. Furthermore, as an illustration, our results are then employed in investigating the problem of testing for jumps in the Merton and Kou models for asset pricing.

Since the empirical version of the criterion function is not uniquely defined, we examine an alternatively defined version based on truncated sums and prove limit theorems under the i.i.d case and as well as the phi-mixing case. This demonstrates the versatility of our approach and provides for the genuine possibility of extension to higher dimensions.

Short Bio:

Karthik Bharath received his Ph.D. from the University of Connecticut in 2012 and is a Visiting Assistant Professor in the department of Statistics at The Ohio State University. His research interests include limit theorems in probability, empirical processes with applications in statistics and stochastic processes.