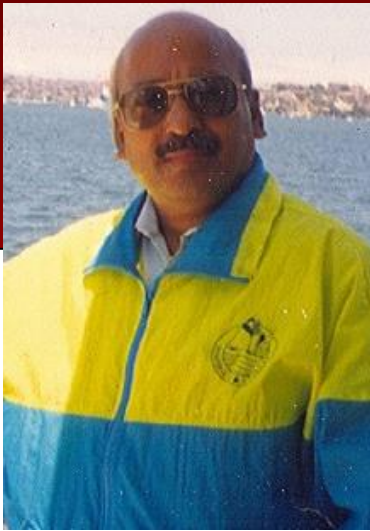


Department of Mathematical Sciences welcomes

Bikas Kumar Sinha **Indian Statistical Institute Kolkata (Retired)**



November 16, 2018

Hosted by:
Prof. Jyoti Sarkar

Tea begins at 2:30
in LD 259

Research Topic
begins at 3:00
in LD 229

Group Testing Designs: A Combinatorial Marvel

ABSTRACT:

“Group Testing” ascertains the presence or absence of a well-defined feature in each unit in a collection by testing them—not one by one—but concurrently in several groups. One must plan the groupings without any ambiguity, assuming that the feature is present in the entire group if and only if it is present in at least one unit within the group. When the group has the feature, one must ascertain which units within the group have the feature – possibly by sub-group testing. When the group lacks the feature, all units within the group lack the feature: this reduces the required number of tests. What is the optimal formation of groups that minimizes the (expected) number of tests?

Although the above formulation looks deceptively simple, there are hidden probabilistic and combinatorial challenges. In this talk, we will discuss some combinatorial challenges only.

ABOUT THE SPEAKER:

Bikas Kumar Sinha retired as a Professor of Statistics from the Indian Statistical Institute Kolkata, after serving there during 1975-2008. In 1972, he earned a PhD in Statistics from Calcutta University; and became the youngest faculty member there. He has been a Visiting Faculty in a number of universities in the USA and Canada. He became an elected member of the International Statistical Institute in 1985.

Professor Sinha has coauthored three research monographs in *Design Experiments*, one graduate textbook on *Finite Population Sampling*, and one research book on *Social Networks and Applications*. He authored/coauthored more than 130 research articles and served on the editorial boards of several national and international journals in Statistics.

