

Speaker: Peter Bickel

Title: Dealing With Large Observation Dimension p in Relation to Data Size n of the Same or Smaller Order

Abstract: Many fields, ranging from genomics, to atmospheric science, to astronomy, are generating large data sets with:

- i) Observation dimension very much larger than, or at least commensurate with, the number of replicates.
- ii) Little theoretical understanding of the underlying data-generating mechanisms and sources of error.

It is widely believed that the only reason we can infer anything from such data sets is because of sparsity, i.e., the data are intrinsically low-dimensional and/or are well-approximated by low-dimensional models. I propose to review selectively some approaches that take advantage of sparsity and which have both theoretical and practical backing.