You are cordially invited to the 291st meeting as scheduled below.

Date: June 5th, 2015 (Fri) 15:00 –

Place: RERF Hijiyama Hall

Speaker: Yasunori Fujikoshi, Ph.D.
Emeritus Professor of Hiroshima University
Advisor of the Hiroshima University Statistical Science Research Core

Title: “Consistency of Estimation Criteria of Dimensionality in Principal Component Analysis”

Summary:
Principal component analysis (PCA) is a method for the reduction of dimensionality of the data in the form of n observations of p variables. The population components and their variances are defined by using the characteristic roots and vectors of the covariance matrix of the p variables. We consider a covariance matrix structure with dimension j such that the first j largest characteristic roots are different and the remainder roots are the same. Such a model can be found in many data sets, and is also obtained from a spiked covariance model. In general, we need to estimate the dimensionality. Our purpose is to give consistency of estimation criteria based on model selection criteria under high-dimensional framework as well as large-sample framework. The theoretical results in the case of non-normality are obtained by using random matrix theory. Simulation results are also given. The present work is based on Fujikoshi and Sakurai (2015) and Bai, Fujikoshi and Choi (2015).