

広島統計談話会

Hiroshima Statistics Study Group

第 264 回談話会を下記のように開催致しますので  
御参集下さいませようご案内申し上げます。

You are cordially invited to the 264<sup>nd</sup> meeting as scheduled below.

日 時 : 2011 年 5 月 27 日 (金) 15:00 –

Date : May 27, 2011 (Fri) 15:00 –

場 所 : 放射線影響研究所 講堂

Place : RERF Auditorium

演 者 : 広島大学名誉教授、中央大学客員教授  
藤越 康祝 博士

Speaker : Yasunori Fujikoshi, Ph.D.  
Emeritus Professor of Hiroshima University  
Visiting Professor of Chuo University

演 題 : 「判別分析と正準相関分析における固有値・固有ベクトルの高次元漸近分布」

Title : “High-Dimensional Asymptotic Distributions of Characteristic Roots and Vectors  
in Discriminant Analysis and Canonical Correlation Analysis”

要 約 :

**Summary:**

In canonical discriminant analysis, it is fundamental to study the distributions of the characteristic roots and vectors of  $W^{-1}B$ , where  $B$  and  $W$  are the matrices of sums of squares and products due to between-groups and within-groups, respectively. There are many results on large-sample asymptotic distributions of them. However, these approximations become increasingly inaccurate as the dimension increases while the sample size remains fixed. On the other hand, we encounter more problems in applications when the dimension is comparable with the sample size or even exceeds it.

In this talk we discuss with high-dimensional asymptotic distributions of the characteristic roots and vectors when the sample size and the dimension are large, though there are only a few results on the characteristic vectors. It is noted that high-dimensional approximations are more accurate in wide range of relationships between the sample size and the dimension. Some relationships between high-dimensional and large-sample approximations are pointed. Further, it is noted that the consistency properties of the sample roots and the vectors in large-sample case do not hold in high-dimensional case.

We also discuss with similar problems in canonical correlation analysis.