

広島統計談話会  
Hiroshima Statistics Study Group

第 273 回談話会を下記のように開催致しますので  
御参集下さいますようご案内申し上げます。

You are cordially invited to the 273<sup>rd</sup> meeting as scheduled below.

日 時 : 2012 年 11 月 30 日 (金) 15:00 –  
Date : November 30, 2012 (Fri) 15:00 –  
場 所 : 放射線影響研究所 講堂  
Place : RERF Auditorium  
演 者 : 福井 敬祐 氏 (広島大学大学院 理学研究科 数学専攻 博士課程後期)  
Speaker : Mr. Keisuke Fukui  
Department of Mathematics, Graduate School of Science, Hiroshima University  
演 題 : 「CV規準を用いた高次元多変量線形回帰モデルの変数選択法」  
Title : “Selection of High-Dimensional Multivariate Linear Regression Models by  
Cross-Validation”

要 約 :

**Summary:**

This study deals with the selection of high-dimensional multivariate linear regression models (MLRMs) in which the dimension of the response variables is larger than the sample size. It is well known that the Akaike information criterion (AIC) cannot be defined in a high-dimensional MLRM, because the ordinary maximum likelihood estimator (MLE) of the covariance matrix becomes singular. Yamamura, Yanagihara, and Srivastava (2010) proposed an AIC for high-dimensional MLRMs by using a ridge-type estimator instead of the MLE of the covariance matrix. The aim of this study is to use cross-validation (CV) to simultaneously choose not only the variables but also the ridge parameter in order to improve the ridge-type estimator of the covariance matrix. By conducting numerical studies, we verify that using CV for model selection performs better than simpler methods.