広島統計談話会

Hiroshima Statistics Study Group

第 311 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 311th meeting as scheduled below.

日　時：　2018 年 6 月 22 日（金）15:00 –

Date　：　June 22nd, 2018 (Fri) 15:00 –

場　所：　放射線影響研究所　E-205 会議室

Place　：　RERF Conference Room E-205

演　者：　佐藤 倫治 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. Tomoharu Sato

Department of Mathematics, Graduate School of Science, Hiroshima University

演　題：　「大標本高次元データにおける一般化推定方程式のためのモデル選択規準」

Title　：　“A model selection criterion for generalized estimating equations when the sample and cluster sizes are large”

要　約：

Summary:

Analysis of longitudinal data such as clinical trial data and growth data is a very important problem in recent applied fields. Longitudinal data, which are measured repeatedly over times from clusters, have features that data from the same cluster have correlation, whereas data from different clusters are independent.

Generalized estimating equations (GEE) proposed by Liang and Zeger (1986) are a representative method to estimate regression coefficients in such longitudinal data. An advantage of GEE is that we can estimate regression coefficients without specifying a joint distribution of data by using a working correlation matrix instead of the true correlation matrix of each response. Although the working correlation structure is freely decided by researchers, regardless of its correctness, the GEE estimator has a consistency property when the cluster sizes are finite constants. However, with cluster sizes tending to infinity, the consistency of the GEE estimator is no longer guaranteed if the working correlation structure is misspecified.

In this talk, we propose a new model selection criterion for selecting optimal correlation structure when cluster sizes are large in longitudinal data. Our proposed criterion can be used to select explanatory variables as well as the correlation structure, which improves prediction accuracy of the GEE estimator.