1116-VP-37   **Juming Pan*** (`panj@bgsu.edu`), Department of Mathematics and Statistics, Bowling Green State University, Bowling Green, OH 43402. *Adaptive Lasso for Linear Mixed Model Selection via Profile Log-Likelihood.*

Mixed models accommodating both fixed effects and random effects are widely utilized to describe the complicatedly correlated data in a variety of fields. However, mixed model selection poses an intricate challenge in that both the set of covariates for the fixed effects and the structure for the random effects are taken into account of selection procedure. For effectively selecting both the fixed and random effects, we propose a two-stage mixed model selection procedure based upon the penalized profile log-likelihood. In the first stage, the random effects are selected using the adaptive lasso penalty term. After the completion of the random effects selection, in the second stage, the fixed effects are selected using another penalized term. In each stage, the Newton-Raphson algorithm is carried out to implement parameter estimation. We prove that the proposed procedure possesses consistency and the oracle properties. For illustration of the performance of proposed selection procedure, we conduct the simulations and an application of a real data example. The simulation results and the application show that the proposed two-stage procedure perform effectively in selecting the best covariates and random covariance structure. (Received June 09, 2015)