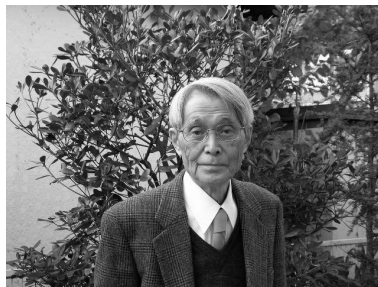


## PREFACE

On 10th November 2006, Dr. Hirotugu Akaike, who is Professor Emeritus and the former Director of the Institute of Statistical Mathematics, was awarded the 2006 Kyoto Prize for introduction of a powerful statistical modeling tool named the “Akaike Information Criterion” (AIC), and its applications to diverse fields.



Dr. Akaike December, 2007

The Kyoto Prize is an international award honoring those who have contributed significantly to humankind’s scientific, cultural, and spiritual development. Consisting of academic honors, a commemorative gold medal and a cash gift of 50 million yen, the prize is Japan’s highest private award for human achievement.

Let us survey a brief outline of Dr. Akaike’s academic contributions (for details, see Prof. Kitagawa’s paper in this volume). After graduation of Tokyo University, Department of Mathematics, he joined the Institute of Statistical Mathematics, Tokyo, in 1952. At the initial stage, he was interested in actual problems. For example, he developed a control method based on the use of the gap process for the silk filature production process which brought significant innovation to the silk production process in Japan.

In the 1960’s, he engaged in a lot of cooperative research with engineers in the car, ship, and chemical plant industries, etc. First, he used nonparametric spectral methods to analyze time series data in these fields, and then he turned to the use of time domain modeling (e.g., autoregressive model). But the order selection of autoregression was a very difficult problem. For this, in 1970, he proposed an order selection criterion named the “Final Prediction Error” (FPE), which is an asymptotically unbiased estimator of the prediction error of an estimated predictor. The proposal of FPE had a strong impact on time series modeling.

The next problem is evidently “how to choose the order of general statistical models”. In 1973, replacing the prediction error by the Kullback-Leibler information between estimated parametric distribution models and the true one, he proposed its asymptotically unbiased estimator as an order selection criterion named the “AIC”, which can be applied to general statistical models, e.g., the cases of i.i.d. models, regression models, multivariate models and econometric models, etc. The proposal of the AIC has opened a new paradigm in general statistical

modeling, and has developed into vast theoretical and application branches in various sciences. After this, he moved to Bayesian modeling, and introduced a Bayesian information criterion (ABIC). Then he applied it to econometric data etc. After his retirement from the Institute, he has been interested in golf swings “practically and statistically”.

Undoubtably we may say that the totality of Dr. Akaike’s academic contributions is one of the most fundamental and important contributions worldwide in statistics for the past 50 years. To celebrate this honorable occasion, we hereby publish “Celebration Volume for Akaike” in the Journal of the Japan Statistical Society.

Masanobu Taniguchi  
The Editor of the Journal of the Japan Statistical Society  
March, 2008