1100-62-348   **Hemalika Abeysundara***, hemalika.abeysundara@ttu.edu, Department of Mathematics & Statistics, Texas Tech University, Lubbock, TX , and **Frits Ruymgaart**, h.ruymgaart@ttu.edu, Department of Mathematics & Statistics, Texas Tech University, Lubbock, TX. *Minimum Hellinger Distance Estimator for Random Design in Regression Model.*

There are several methods to estimate parameters of a statistical model based on maximizers and minimizers. Some methods are efficient but not robust. Beran proposed an estimator based on Minimum Hellinger Distance (MHD) method that turned out to be both efficient and robust. Here we exploit his idea in the context of regression estimation. We consider a regression problem with random design where the regression function is defined on an arbitrary measurable space and is assumed to belong to a parametric family which is a compact subset of the real line. The design variable is drawn form an unknown, completely arbitrary probability distribution on the design space. The error variable is assumed to have a known density with a finite second moment and zero mean. We assume that the design variable and the error variable are stochastically independent. The estimation procedure uses two different estimators for the density of the response variable. One is entirely nonparametric and the other one is tailored to a specific parametric value. The MHD estimator for the parameter is obtained as the minimizer of Hellinger distance between these two. After some elementary properties of the proposed MHD estimator, we prove consistency and asymptotic normality. (Received February 10, 2014)