

1053-62-16

**Hira L. Koul\*** ([koul@stt.msu.edu](mailto:koul@stt.msu.edu)), Professor Hira L. Koul, Department of Statistics & Probability, Michigan State University, East Lansing, MI 48824. *Model Diagnostics via Martingale Transforms.*

Classical problems in statistics are to fit a distribution up to unknown location-scale parameters and to fit a parametric model to the regression - autoregressive function. The first problem is generic to many other statistical models including the celebrated regression and autoregressive and generalize autoregressive conditionally heteroscedastic (ARCH-GARCH) models where one is testing that innovations are from a given distribution. It will be argued that the Khamaladze's martingale transformation of the residual empirical process that yields asymptotically distribution free tests for the one sample location-scale model does the same thing for a parametric heteroscedastic regression model, and ARCH-GARCH models. Analogous tests for the second problem will be also discussed.

This talk is based on some ongoing joint work with Estate Khmaladze. (Received May 26, 2009)