1092-62-47 **Feng-Chang Lin*** (flin@bios.unc.edu). *Robust analysis of semiparametric renewal process models.*

A rate model is proposed for a modulated renewal process comprising a single long sequence, where the covariate process may not capture the dependencies in the sequence as in standard intensity models. We consider partial likelihood-based inferences under a semiparametric multiplicative rate model, which has been widely studied in the context of independent and identical data. Under an intensity model, gap times in a single long sequence may be used naively in the partial likelihood, with variance estimation utilizing the observed information matrix. Under a rate model, the gap times cannot be treated as independent and studying the partial likelihood is much more challenging. We employ a mixing condition in the application of limit theory for stationary sequences to obtain consistency and asymptotic normality. The estimator's variance is quite complicated, owing to the unknown gap times dependence structure. We adapt block bootstrapping and cluster variance estimators to the partial likelihood. Simulation studies and an analysis of a semiparametric extension of a popular model for neural spike train data demonstrate the practical utility of the rate approach in comparison with the intensity approach. (Received July 17, 2013)