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## ECONOMETRIC RESEARCH SEMINAR

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- SZVI  
Institut für Höhere Studien  
Stumpergasse 56, 1060 Wien

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### ***“Estimation and Inference in Unstable Nonlinear Least Squares Models”***

In this paper, we extend Bai and Perron's (1998, *Econometrica*, pp. 47-78) method for detecting multiple breaks to nonlinear models. To that end, we consider an unstable univariate nonlinear least squares (NLS) model with a limited number of parameter shifts occurring at unknown dates. In our framework, the break-dates are estimated simultaneously with the parameters via minimization of the residual sum of squares. Using nonlinear asymptotic theory, we derive the asymptotic distributions of both break-point and parameter estimates and propose several instability tests. We also present simulation results that validate our procedure. We compare our method to smooth transition (STR) models with time-transition in the context of the US interest rate reaction functions and conclude that there is evidence of at least one break at the end of 1984.