1014-37-1654 **Sandra A. Hayes*** (hayes@ma.tum.de), Department of Mathematics, Technical University of Munich, Boltzmannstr. 3, D-85747 Garching bei Munich, Germany, and **Yunping Jiang**.
Deterministic Dynamics and Chance.

A new approach to explain the apparent randomness of a deterministic system is from the perspective of time series analysis. The iterates of an interval map f are the random variables on the interval with respect to a measure preserved by f. It is shown here that such time series are always stationary. If f is piecewise linear and preserves Lebesque measure, the induced time series is a first order autoregression. In particular, when f is the k-adic shift or the asymmetric tent, the time series is a first order autoregression. If f has certain symmetries, e.g. if f is the logistic function or the symmetric tent, the induced time series is white noise. (Received September 28, 2005)