

Evidence for nonlinear and chaotic behaviour in pulsar spin-down rates

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Abstract. We present evidence for chaotic dynamics in pulsar spin-down rates originally measured by Lyne *et al.* (2010). Using techniques that allow us to re-sample the original measurements without losing structural information, we have searched for evidence for a strange attractor in the time series of frequency derivative for each pulsar. Our measurements of correlation dimension and Lyapunov exponent show, particularly in the case of PSR B1828-11, that the underlying behavior appears to be driven by a strange attractor with approximately three governing nonlinear equations.
