# Dataset S4

# R code to generate surrogate simulations in order to assess suitability of

# spectral analysis procedures provided in Astrochron: testing the

# use of AR1-based models to analyze power law surrogates, and vice versa

# Load the library Astrochron

library(astrochron)

# Conduct simulations using power law surrogates and MTM-AR1 approach

testBackground(npts=1240, dt=0.05, noiseType=”pwrLaw”, coeff=0.3938128,   
 method=”mtmAR1”, detrend=T,tbw=2,iter=2000)

# Conduct simulations using power law surrogates and the MTM-ML96 approach

testBackground(npts=1240, dt=0.05, noiseType=”pwrLaw”, coeff=0.3938128,   
 method=”mtmML96”, detrend=T,tbw=2, iter=2000)

# Conduct simulations using power law surrogates and the LOWSPEC approach

testBackground(npts=1240, dt=0.05, noiseType=”pwrLaw”, coeff=0.3938128,   
 method=”lowspec”, detrend=T,tbw=2, iter=2000)

# Conduct simulations using AR1 surrogates, and the MTM-PL approach

testBackground(npts=1240, dt=0.05, noiseType=”ar1”, coeff= 0.3082017,

method=”mtmPL”, detrend=T, tbw=2, iter=2000)

# Conduct simulations using AR1 surrogates, and the Periodogram-PL approach

testBackground(npts=1240, dt=0.05, noiseType=”ar1”, coeff= 0.3082017,   
 method=”periodogramPL”, detrend=T, tbw=2, iter=2000)

# Conduct simulations using power law surrogates, and the Periodogram-AR1 approach

testBackground(npts=1240, dt=0.05, noiseType=”pwrLaw”, coeff=0.3938128,   
 method=”periodogramAR1”, detrend=T, iter=2000)