

Physics Seminar

Wednesday 1/20/2010, 4:30 pm
Science & Engineering Building Auditorium

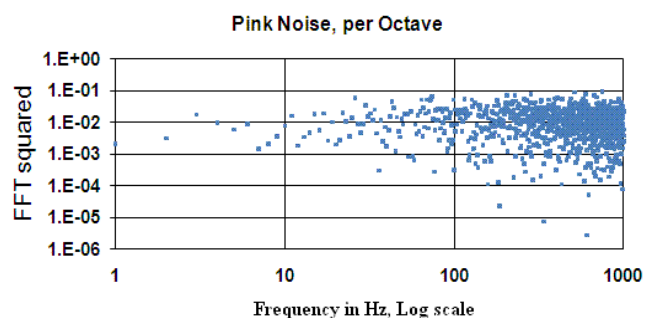
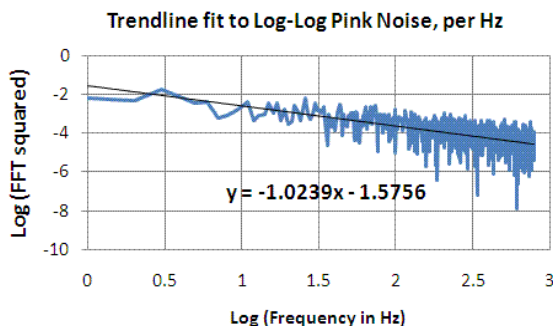


Randall D. Peters

Department of Physics
Mercer University

Pink Color of Seismic Noise in the Low Frequency Limit

Pink noise or $1/f$ noise is a signal or process with a spectrum such that the **power spectral density (PSD)** is inversely proportional to the frequency. In pink noise, *each octave carries an equal amount of noise power*. The name arises from being intermediate between white noise ($1/f^0$) and red noise ($1/f^2$), more commonly known as Brown(ian) noise. Extensively studied as 'flicker' noise in vacuum tubes, it occurs in almost all electronic devices, and results from a variety of effects, such as impurities in a conductive channel, or from generation and recombination of carriers in a transistor. It is more widespread in nature than other forms of noise, and acoustically, it is the most pleasing form to the ear (such as sound from a waterfall). Being ubiquitous, it is remarkable that an important seismic regime of this type would take so long to discover. The true spectral nature of seismic noise has been hidden, for reason of a three-decades-old *misunderstanding* of PSD's, plus the need to correct for tilt in the response of a seismograph.



Please join us for light refreshments at 4:15pm outside SEB 203.