962-60-926 **Tyrone E Duncan*** (duncan@math.ukans.edu), Mathematics Department, University of Kansas, Lawsrence, KS 66045. *Some Applications of Fractional Brownian Motion.* Preliminary report.

Fractional Brownian motion is a family of Gaussian processes that is indexed by the Hurst parameter H in the interval (0,1). These processes have arisen in modeling many physical phenomena and they have interesting mathematical properties. A stochastic calculus for these processes with H in (1/2,1) is described because the usual stochastic calculus is not applicable. Some applications of this calculus to some models with fractional Brownian motion are given. Furthermore, an infinite dimensional version of fractional Brownian motion is also given and some properties of stochastic differential equations with this process are described. (Received September 29, 2000)