

Fractional Brownian motion is a nontrivial generalization of standard Brownian motion (Wiener process). Definition leaves independence of increments, whereas dependence is controlled by the Hurst index. This paper deals with proofs of fractional Brownian motion's properties such as correlation of increments, selfsimilarity, long-range dependence and analytical properties of its paths, i.e. Hölder continuity and nondifferentiability. Furthermore, the proof of the theorem about nondifferentiability is presented in a stronger form than it is usual in published papers about fractional Brownian motion. Further topics are simulations of the process's paths, suitable even for general Gaussian processes, and point estimators of the Hurst index.