1086-VI-2204   **FARZAD SABZIKAR*** (`sabzika2@stt.msu.edu`), Department of Statistics and Probability, Michigan State University, 619 Red Cedar Road, C512 Wells Hall, East Lansing, MI 48824-1027, and **Mark M Meerschaert** (`mcubed@stt.msu.edu`), Department of Statistics and Probability, Michigan State University, 619 Red Cedar Road, C430 Wells Hall, East Lansing, MI 48824-1027. *Tempered Fractional Brownian Motion.* Preliminary report.

Tempered fractional Brownian motion TFBM modifies the power law kernel in the moving average representation of a fractional Brownian motion (FBM), adding an exponential tempering. It can be considered as a tempered fractional derivative (or tempered fractional integral) of a Brownian motion. It also has a harmonizable representation. The increments of TFBM are stationary, and the autocovariance of the resulting tempered fractional Gaussian noise TFGN has semi-long range dependence, in which the autocorrelations decay like a power law over a moderate length scale, but eventually fall off more rapidly. The spectral density of TFGN is computed, and a reproducing kernel Hilbert space representation is derived.

Keywords: Fractional Brownian motion, tempered fractional derivative, harmonizable representation, long range dependence, reproducing kernel Hilbert space. (Received September 25, 2012)