1023-60-171      **Yasong Jin\*** (`jinyasong@math.ku.edu`), 1625 Ellis Dr. Apt 6, Lawrence, KS 66044, and **Tyrone E. Duncan**. *Maximum queue length for a Gaussian queueing model.*

A fractional Brownian queueing model, that is, a fluid queue with a fractional Brownian motion as input, has been applied in network modeling since the self-similarity and long-range dependence were observed in Internet traffic. We focus on a fluid queue with a general Gaussian input, which includes a fractional Brownian motion. The maximum queue length over an arbitrary time interval $[0, t]$ is studied. It is shown that a limit of the maximum queue length suitably normalized is determined by a suitable function of the asymptotic variance of the Gaussian input. Some queueing models, such as, a queue with a heterogeneous fractional Brownian input and a queue with an integrated Gaussian input, will be discussed as examples. For a fractional Brownian model, these results are compared with some results in literature. (Received August 17, 2006)