

The University of Chicago
Department of Statistics
Seminar Series

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Self-Similarity and Computer Network Traffic

MONDAY, November 8, 2010, at 4:00 PM

133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110.

ABSTRACT

Ethernet local area network traffic appears to be approximately statistically self-similar. This discovery, made about twenty years ago, has had a profound impact on the field. I will try to explain what statistical self-similarity means, how it is detected and indicate how one can construct random processes with that property by aggregating a large number of “on-off” renewal processes. If the number of replications grows to infinity then, after rescaling, the limit turns out to be the Gaussian self-similar process called fractional Brownian motion. But if one looks at very large time scales, then one obtains instead a Levy stable motion which is a process with independent increments, infinite variance and heavy tails.

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