1046-90-819   **John F Shortle*** (`jshortle@gmu.edu`), 4400 University Dr., MS 4A6, Fairfax, VA 22030, **Martin J. Fischer** (`mfischer@noblis.org`), 3150 Fairview Park Drive South, Falls Church, VA 22042, and **Denise M. B. Masi** (`dmasi@noblis.org`), 3150 Fairview Park Drive South, Falls Church, VA 22042. *Simulation Techniques and Numerical Methods for Analyzing Systems with Heavy-Tailed Distributions.*

Many systems that involve heavy-tailed distributions are difficult to analyze analytically. The presence of heavy tails often presents challenges that do not exist for similar systems without heavy tails. This talk presents an overview of some of these issues as well as numerical methods and simulation techniques for addressing the problems. For example, G/G/1 queues, which have applications in telecommunications and insurance-risk modeling, pose challenges for simulation when the underlying distributions are heavy-tailed. We investigate why this may be so. Even if we are willing to consider truncated distributions (as a way to model some large but finite maximum for the distributions in question), there still can be problems in simulating if the truncation point is too large. Simulation techniques, such as importance sampling, and other numerical techniques to address these issues are discussed. (Received September 11, 2008)