1035-94-1326   **Walter Willinger*** (`walter@research.att.com`), 180 Park Avenue, Room C228, Florham Park, NJ 07932. *New Mathematical Challenges arising from Studying Internet-like Systems.*
I will use recent examples of advances in the theory of random graphs and contrast them with what is really needed for understanding highly engineered systems such as the Internet. At issue are the need to understand the quality of the huge amounts of available measurements, an appreciation for the critical architectural features of Internet-like designs, and the realization that no mathematical theory will have any impact unless it accounts for and respects the importance of the protocols that are essential for the proper functioning and efficient performance of Internet-like systems. (Received September 19, 2007)