

Meeting: 1002, Pittsburgh, Pennsylvania, SS 13A, Special Session on Mathematical Biology

1002-60-30 **Anant P. Godbole*** (godbolea@etsu.edu), ETSU Math Dept, Box 70663, Johnson City, TN
37614. *Palindromes in random letter generation*. Preliminary report.

We prove an Erdős-Rényi law for the length L_n of the longest palindrome given n independent and identically distributed, but non-uniform, letters from a finite alphabet of size d . An extreme value distributional limit for L_n is provided as well, as are refinements of the basic Erdős-Rényi law alluded to above. Since palindromes are so significant in genome analysis, we use statistical procedures to see whether our predicted results are close to the actual ones for several viruses. Both RNA and DNA-viruses are considered. Simulations reveal that a far better fit is obtained when the propagation of the genome is assumed to follow a j th order Markov process; $j \leq 3$. This is joint work with Spencer Slade, Alberto Mokak, Anne Shiu and James Gardner. (Received July 13, 2004)