1077-05-1956 **Carla D. Savage*** (savage@csc.ncsu.edu), Department of Computer Science, Box 8206, North Carolina State University, Raleigh, NC 27695-8206, and **Gopal Viswanathan** (gviswan@ncsu.edu), Department of Computer Science, Box 8206, North Carolina State University, Raleigh, NC 27695-8206. *The* $1/k$ *- Eulerian Polynomials.*

We introduce the $1/k$ - Eulerian polynomials, defined combinatorially as the distribution of a certain statistic over "k-inversion sequences". These polynomials arise naturally in the theory of lecture hall partitions, via an associated "k-lecture hall polytope".

We show that the Ehrhart polynomial of the k-lecture hall polytope can be computed explicitly. From this, the exponential generating of the $1/k$ - Eulerian polynomials is derived (and their name is explained). In doing so, we uncover a connection between the $1/k$ - Eulerian polynomials and the joint distribution, over the symmetric group, of excedance and number of cycles. (Received September 21, 2011)