

1104-05-106

**Fu Liu\***, fuliu@math.ucdavis.edu. *The lecture hall parallelepiped.*

The  $s$ -lecture hall polytopes  $P_s$  are a class of integer polytopes defined by Savage and Schuster which are closely related to the lecture hall partitions of Eriksson and Bousquet-Mélou. We define a half-open parallelepiped  $Par_s$  associated with  $P_s$  and give a simple description of its integer points. We use this description to recover earlier results of Savage et al. on the  $\delta$ -vector (or  $h^*$ -vector) and to obtain the connections to  $s$ -ascents and  $s$ -descents, as well as some generalizations of these results.

This is joint work with Richard Stanley. (Received August 25, 2014)