Meeting: 1004, Bowling Green, Kentucky, SS 14A, Special Session on Geometric Topology and Group Theory

1004-20-65 **Noel Brady**, **Martin Bridson** and **Max Forester*** (`forester@math.ou.edu`), Mathematics Department, University of Oklahoma, Norman, OK 73019-0315, and **Krishnan Shankar**. *First and second order isoperimetric exponents of groups.*

I will describe a simple construction of finitely presented groups having first or second order isoperimetric function of the form x^α for certain prescribed numbers α. In particular we find that both the first and the second order isoperimetric spectra contain all rational numbers greater than 2.

More specifically, the exponent α can be any number of the following form (for either first or second order isoperimetric functions). Let P be an irreducible positive integer matrix and choose an integer n greater than the largest row sum of P. Let λ be the Perron-Frobenius eigenvalue of P. Then $\alpha = 2\log_\lambda(n)$ can be realized. (Received January 19, 2005)