1007-20-174 **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 a 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 February 20, 2005)