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Moon Duchin*, Math Dept, University of Michigan, 2074 East Hall, 530 Church Street, Ann Arbor, MI 48109, and **Anne Thomas**. *Filling at infinity*. Preliminary report.

Isoperimetric inequalities capture a great deal of geometry in relating volumes in different dimensions. By using a suitable coarse notion of volume, various filling rates can be defined and computed in groups and other general metric space settings. Making a further modification, one can define higher divergence rates— these are filling rates ”at infinity,” or far from a basepoint, generalizing the divergence of geodesics to higher dimensions. These divergence rates were originally defined by Brady and Farb for Hadamard spaces, and shown by Hindawi to detect the real-rank of a symmetric space. We give a coarse definition and investigate what geometric properties it can detect. (This is joint work with Anne Thomas.) (Received August 18, 2008)