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Arthur D Szlam*, 715 Broadway, New York, NY 10003, and **Xavier Bresson**. *Total Variation and Cheeger Ratio Cuts*. Preliminary report.

I will discuss a continuous relaxation of the Cheeger cut problem on a weighted graph (which is used in image segmentation), and show how the relaxation is actually equivalent to the original problem. Then I will introduce an algorithm which experimentally is very efficient at approximating the solution to this problem on some clustering benchmarks. I will also give a heuristic variant of the algorithm which is faster but often gives just as accurate clustering results. This is joint work with Xavier Bresson, inspired by recent papers of Buhler and Hein, and Goldstein and Osher, and by an older paper of Strang. (Received September 19, 2009)