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Mihaela Ignatova* (ignatova@math.princeton.edu) and **Peter Constantin**. *Critical SQG in bounded domains*.

We establish nonlinear lower bounds (nonlinear maximum principle) and commutator estimates for the Dirichlet fractional Laplacian in bounded domains. As an application global existence of weak solutions of critical SQG were obtained. We prove global a priori interior Hölder bounds for large data. This is a joint work with Peter Constantin. (Received March 17, 2017)