Leonardo Kosloff* (lkosloff@fau.edu) and Tomas Schonbek. On the Laplacian, and fractional Laplacian, in an Exterior Domain.

We see that the generalized Fourier transform due to A.G. Ramm for the case of $n = 3$ space dimensions remains valid, with some modifications, for all space dimensions $n \geq 2$. We use the resulting spectral representation of the exterior Laplacian to study exterior problems. In particular the Fourier splitting method developed by M.E. Schonbek extends easily to the study of this type of problems, as we illustrate for the dissipative 2 dimensional quasi-geostrophic equation in the critical case. (Received September 21, 2011)