1023-44-449 **Allan Greenleaf*** (`allan@math.rochester.edu`), Department of Mathematics, University of Rochester, Rochester, NY 14627, and **Karthik Ramaseshan**. *Microlocal analysis of the linearized attenuated Radon transform.* Preliminary report.

The attenuated Radon transform $R_a f$ is linear in the intensity function $f(x)$ but nonlinear in the attenuation coefficient $a(x)$. We analyze the linearization of R_a (about a background attenuation $a_0(x)$) and study its mapping properties on Sobolev spaces. (Received September 13, 2006)