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Allan Greenleaf* (allan@math.rochester.edu), Department of Mathematics, Hylan 1020, University of Rochester, Rochester, NY 14627, and **Ramaseshan Karthik**. *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 August 31, 2006)