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M. Paul Laiu* (laiump@ornl.gov) and **Cory D. Hauck** (hauckc@ornl.gov). *Positivity Limiters on the Filtered P_N Method for Linear Transport Equations.*

We analyze the properties and compare the performance of several positivity limiters on the recently proposed filtered P_N (FP $_N$) method for linear transport equations. The original FP $_N$ method is known to suffer from the occurrence of (unphysical) negative particle concentrations, which originates from the fact that FP $_N$ spherical harmonic approximations are not always positive at the kinetic level. These limiters enforce positivity of the FP $_N$ approximations on a finite set of pre-selected points. With a proper PDE solver, this ensures positivity of the particle concentration at each step in the time integration. We give error estimates for the positive approximations produced by these limiters, and verify the estimates with numerical consistency tests. We simulate problems of various regularities using the FP $_N$ method with several limiters, and report the efficiency of these limiters. The numerical results give a guideline on selecting positivity limiters for problems with solving different regularities. (Received September 12, 2016)