Velocity fluctuations from randomly moving particles at low Re
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We discuss the solution of the time-dependent Stokes equation for particles undergoing random changes in their velocity. Three regimes in the spatial variation of the velocity field and in the second moment of the velocity fluctuations can be distinguished. With increasing distance from the particles, the velocity fluctuations drop off first like $1/r^2$, then like $1/r^4$ and finally like $1/r^6$ for the largest distances. The results will be related to observations on velocity fluctuations in suspensions.