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**KAI KOIKE**, Kyoto University

*Refined pointwise estimates for the solutions to a system of a 1D viscous compressible fluid and a moving point mass*

The long-time behavior of a system of a one-dimensional barotropic viscous compressible fluid and a moving point mass is investigated. In a previous work, I showed that the velocity  $V(t)$  of the point mass satisfies a power-law decay estimate  $V(t) = O(t^{-3/2})$ . This time, I give a necessary and sufficient condition for a corresponding lower bound  $|V(t)| \geq C^{-1}(t+1)^{-3/2}$  ( $t \gg 1$ ) to hold (preprint: <https://arxiv.org/abs/2010.06578>). This is proved as a corollary to refined pointwise estimates for the fluid variables.