

1 1D SPH Code Applied to a Shock Tube Problem

Figure ?? shows 4 stages in the evolution of the density profile obtained from executing the 1D SPH code. Figure ?? shows the comparison of the piecewise and TVD-minmod methods, but something went wrong with the TVD-MC2 method that caused the time-step to blow up (getting down as far as $dt \cdot 10^{-53}$) such that it never finished. A plot of the density profile at $t = 1.8$, which is just before it blows up, is shown in Figure ??.

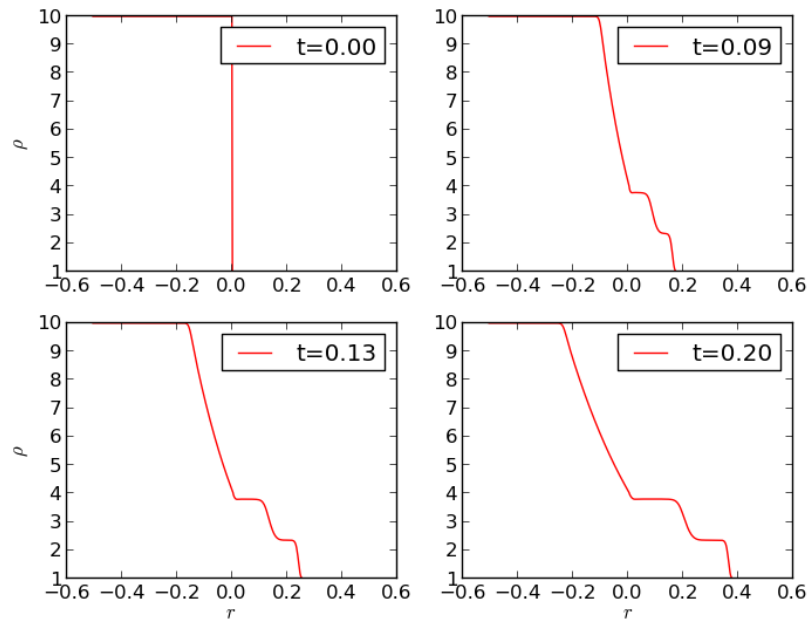


Figure 1: Evolution of the density profile shown at four stages.

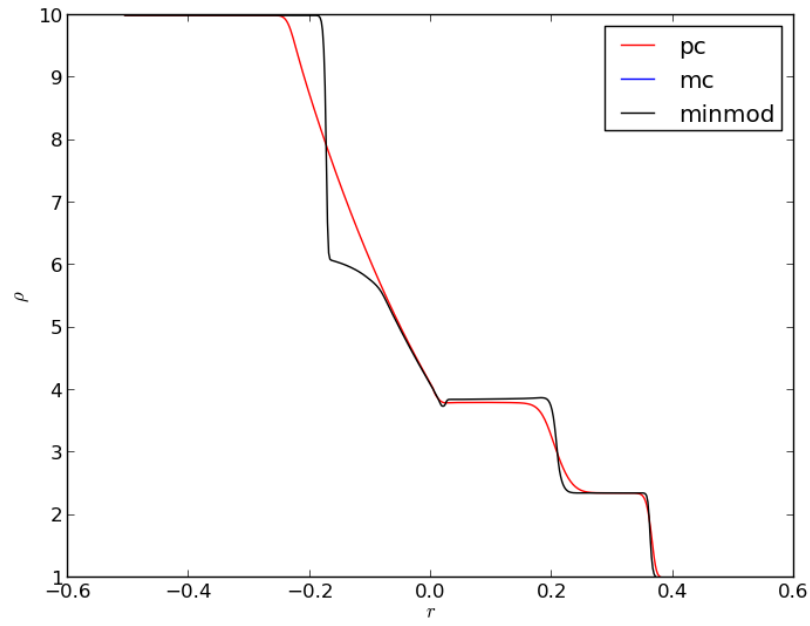


Figure 2: Comparison of minmod and piecewise reconstructions.

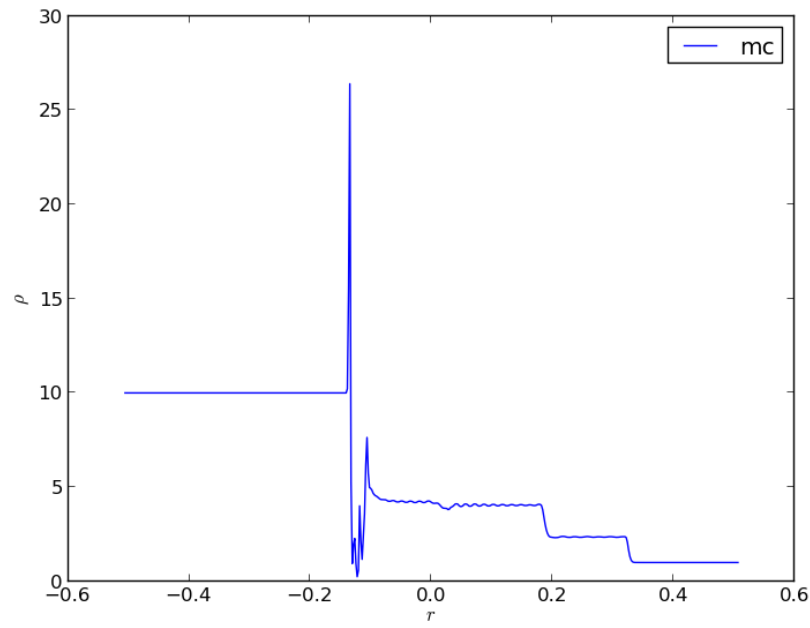


Figure 3: The profile given by the mc method before it blew up.