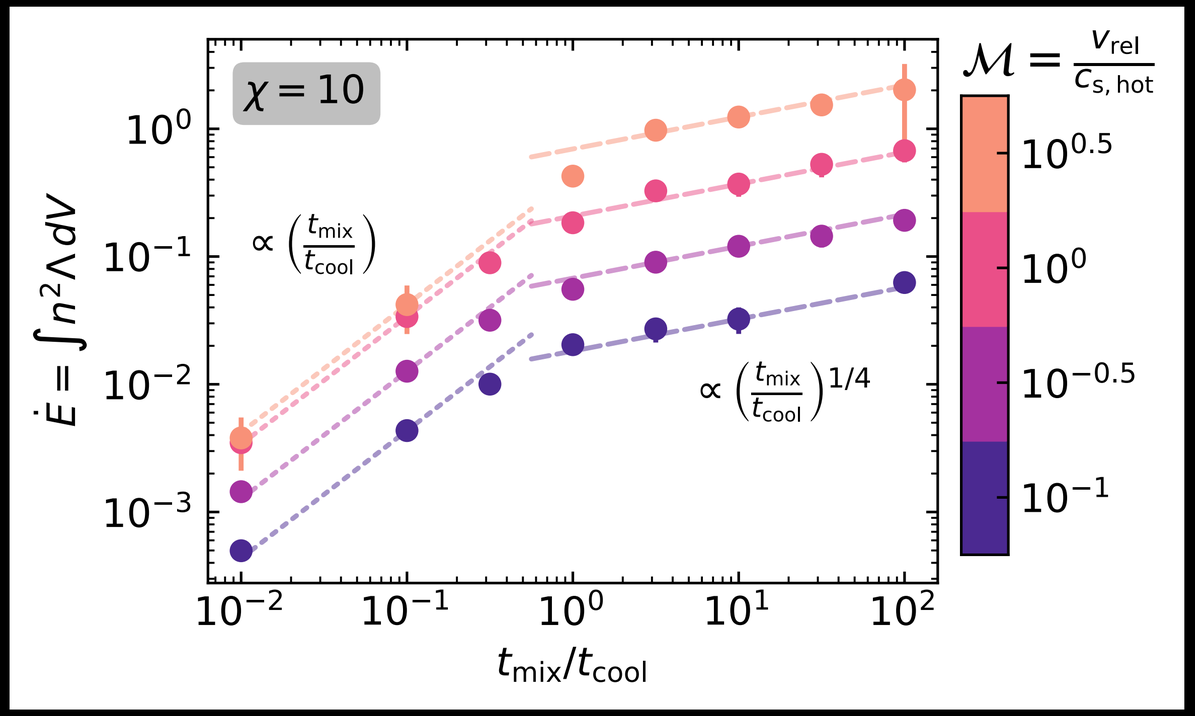
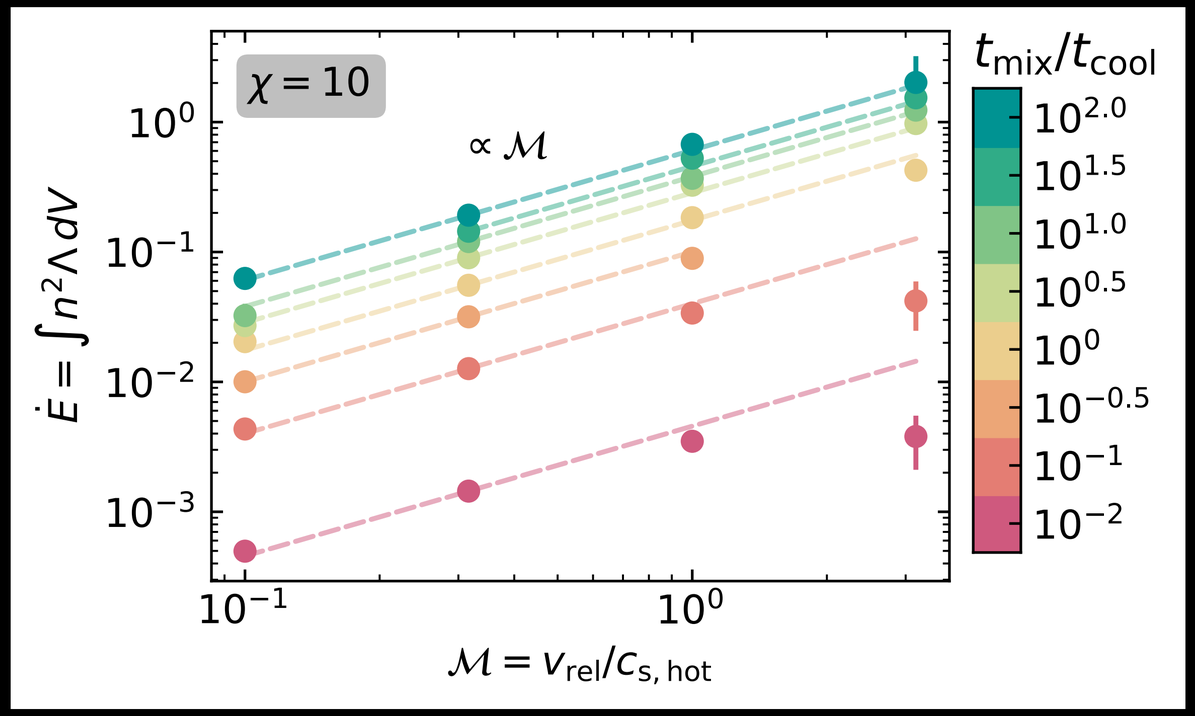
Entrainment, acceleration, & cooling

Rapid cooling limit, i.e. when $t_{mix}/t_{cool} \gtrsim 1$:

$$\dot{E}_{cool} \propto \left(t_{mix}/t_{cool}\right)^{1/4} \quad \text{Mach} \sim \left(\frac{\chi^{1/2} L}{v_{rel}\, t_{cool}}\right)^{1/4} \left(\frac{v_{rel}}{c_s}\right) \propto \frac{L^{1/4}\, v_{rel}^{3/4}}{t_{cool}^{1/4}}$$





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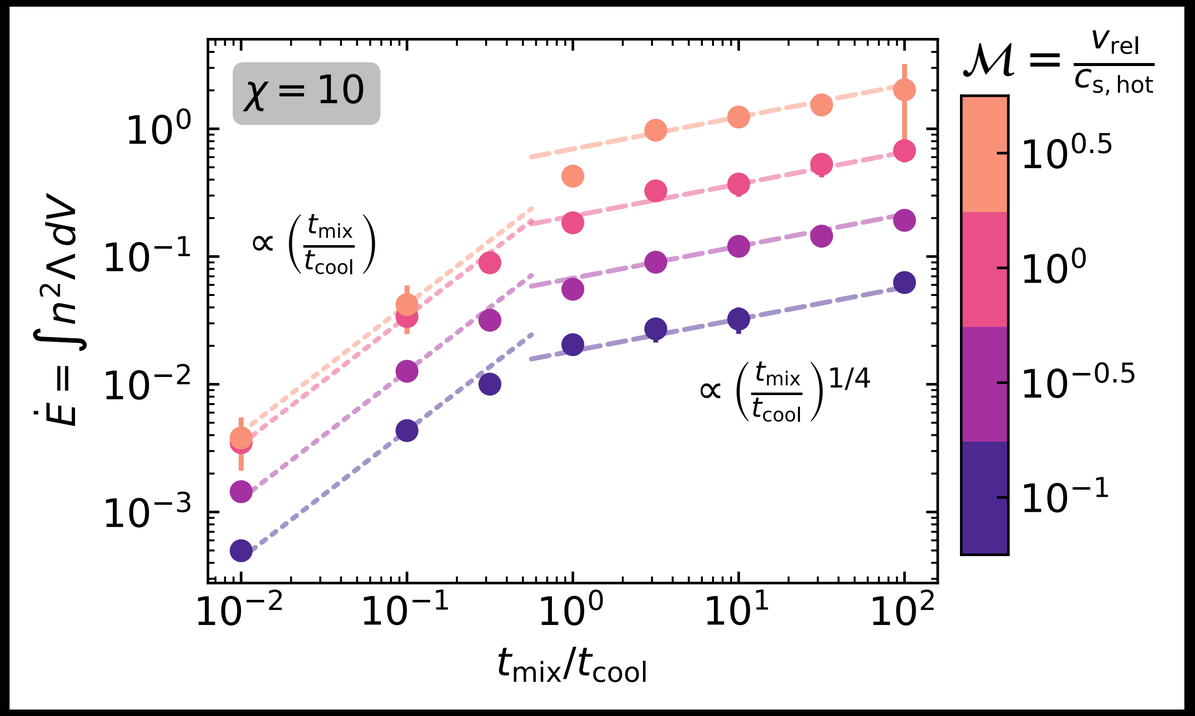

Does this really depend on L in this way
To test this I should do strong cooling simulations
With fixed Δx and vrel and tcool, but I need to get at
Least a range of 16 in L to get a factor 2 difference
In Edot_cool, but if I do a L=1 sim with 128, then going
4x larger gives me 512, which is probably too big to
afford. So first I need to see if using a L=1 with 64 is
Converged (enough) to use. However then going the
Other way to a L = 1/4, means I have only 16 cells
Across which is probably too small…..
Maybe I can get a way with a range of 8 in L, which
Corresponds to a 1.68 change in Edot_cool.