Changing k_f

April 23, 2022, Revision: 1.8

1

Hypothesis:

$$\Omega_\mathrm{GW} = (q\Omega_\mathrm{M}/k_\mathrm{f})^2 \qquad (1)$$

Determine q; we find $q \propto k_\mathrm{f}^{1/4}$; see Figure 2. The GW energy is high by comparison with earlier work; see Figure 3.

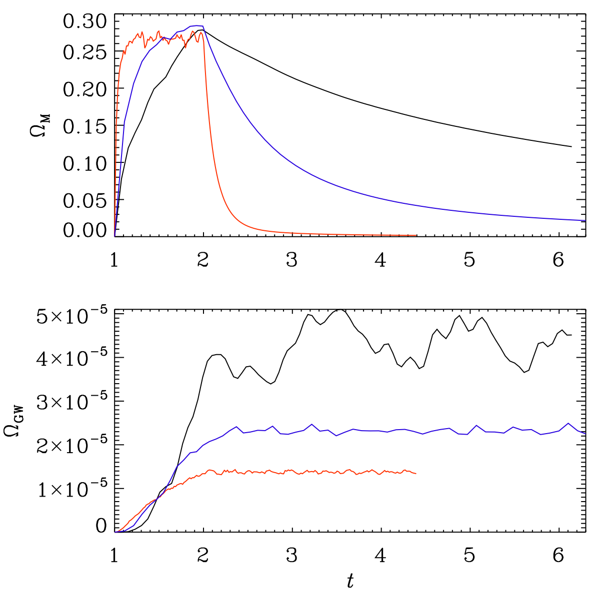

Figure 1: Black, blue, and red are for $k_\mathrm{f} = 6$, 20, and 60, respectively.

Table 1: All runs with $\eta = 2\times10^{-3}$.

k_1	f_0	Ω_M	Ω_GW
1	6.0e-02	3.874e-02	4.189e-05
3	3.2e-02	4.038e-02	2.313e-05
10	2.3e-02	3.831e-02	1.375e-05

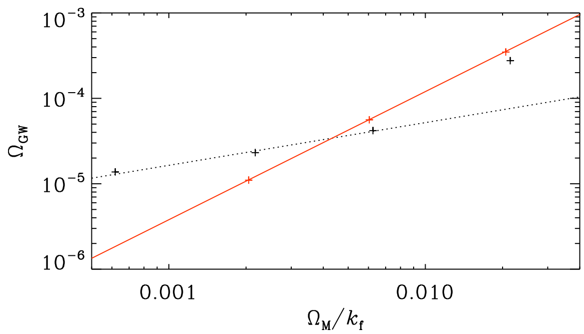

Figure 2: $\Omega_\mathrm{GW} = 5.2\times10^{-4}\,(\Omega_\mathrm{M}/k_\mathrm{f})^{1/2}$

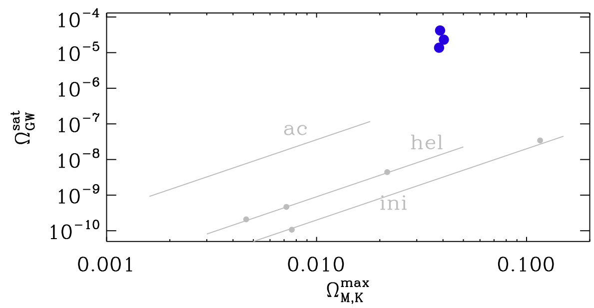

Figure 3: Positions of the new runs in a diagram showing $\Omega_\mathrm{GW}^\mathrm{sat}$ versus $\Omega_\mathrm{M}^\mathrm{max}$, For orientation the old data points of the Ref. [1] are shown as gray symbols.

References

[1] A. Roper Pol, S. Mandal, A. Brandenburg, T. Kahniashvili and A. Kosowsky, "Numerical Simulations of Gravitational Waves from Early-Universe Turbulence," Phys. Rev. D **102**, 083512 (2020). doi:10.1103/PhysRevD.102.083512

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