$\Delta \sim$
5
α
?
?
?
?
?
?
?
N
z

$$N = N_g \, z \, \Omega = n_g \, V \, . \tag{1}$$

N_g
n_g
V
$\Delta_g =$
$(N_g -$
$\bar{N}_g)/\bar{N}_g$
$\delta_g =$
$(n_g -$
$\bar{n}_g)/\bar{n}_g$
$\Delta_g =$
$\delta_g +$
$\underline{\delta_g} -$
$\frac{1}{H}$.
$\nabla($
$H =$
$\ln a/\eta =$
$(\ln a)'$
$= \nabla V$
$\check{V}$
$v =$
$||$
k
Q
χ

$$a^{-2}s^2 = -\big(1+2\Phi\big)\eta^2 + \big(1-2\Psi\big)^2 \, , \tag{2}$$

$\Phi =$
Ψ
A, B, C, E
$\partial V \propto$
$(H/k)\delta_m$
$\Psi \propto$
$(H/k)^2\delta_m$
$\partial^2\Psi \propto$
δ_m
?
?
?
?
?
?
1

$$\delta_{g\mathrm{C}}(a,) = b_1(a)\delta_{m\mathrm{C}}(a,) \, . \tag{3}$$

δ_g
δ_m
?
?
?

$$\delta_g = b_1\delta_{m\mathrm{C}} + (3-b_e)HV \, , b_e = \frac{\partial \ln(a^3\bar{n}_g)}{\partial \ln a} \, , \tag{4}$$

b_e
V
Ψ
$V \propto$
$\Psi \propto$
$(H/k)^2\delta_m$
$(3-$
$b_e)HV$
?
?

$$b_1(a) \to b_1(a) + 3\,\delta_{\mathrm{crit}}\Omega_{m0}H_0^2 \, \frac{\big[b_1(a)-1\big]}{D(a)} \, g_{\in} \, \frac{}{T(k)k^2} \, . \tag{5}$$

$\delta_{\mathrm{crit}} =$
1.686
D
$a_0 =$
1
$\delta_m(a,) =$
$D(a)\delta_{m0}()$
Ψ
$g =$
D/a