

Dodelson Chapter 4: The Boltzmann Equation

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1 | The Boltzmann Equation

The untegrated Boltzmann equation,

$$\frac{df}{dt} = C[f] \quad (1.1)$$

Left-hand side of the Boltzmann equation ?? means the change in the distribution function f over time and the right-hand side contains the all possible collision terms; In general they can be complicated functionals of the distribution functions of the varoius components.

Solution of the Boltzmann equation will be given in the context of couple examples, such as the Boltzmann equation for the Harmonic Oscillator, the B.E. for the photon both for collisionless and with collision etc.

2 | The Boltzmann Equation for the Harmonic Oscillator