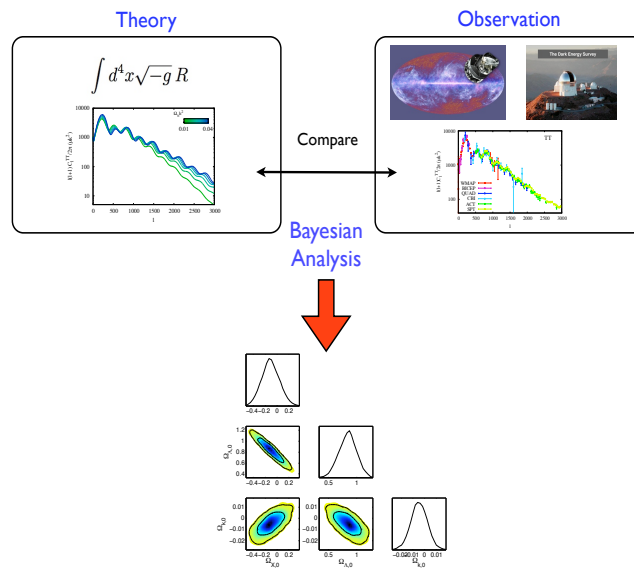


Updated Cosmology

with Python



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In progress

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Homework 5

The FRW metric is written in the following way

$$ds^2 = c^2 dt^2 - R^2(t) \gamma_{ij} dx^i dx^j. \quad (47)$$

HW 0.1: Compute the Christoffel symbols to get

$$\Gamma_{ij}^0 = R\dot{R}\gamma_{ij}, \quad \Gamma_{0j}^i = \frac{\dot{R}}{R}\delta_j^i, \quad \Gamma_{jk}^i = \frac{1}{2}\gamma^{il}(\partial_j\gamma_{kl} + \partial_k\gamma_{jl} - \partial_l\gamma_{jk}).$$

otherwise zero.