

Title: Challenges in Cosmology

Date: Jun 24, 2011 10:30 AM

URL: <http://pirsa.org/11060049>

Abstract: An attempt at describing some of the shortcomings in our present understanding of cosmology.

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$$M \sim R$$

$$S \sim R^{3/2}$$

$$e^{R^{3/2}}$$

$$S \sim R^2$$



$$M \sim R$$

$$S \sim R^{3/2}$$

$$e^{R^{3/2}}$$

$$S \sim R^2$$

$$\sigma \sim \rho^{3/4}$$

$$S = \int d^3 r \rho^{3/4}(r) \sim \int d^3 r \frac{1}{r^{3/2}}$$

$$\rho(r) \sim \frac{1}{r^2} \sim \frac{1}{r^2}$$

$$M = \int d^3 r \rho(r) \sim \int \frac{d^3 r}{r^2} \sim R$$



dS-CFT  $\leftarrow$  ?  
FRW-CFT  $\left\{ \begin{array}{l} \text{ACCELERATING} \\ \text{DECELERATING} \end{array} \right.$

$$M \sim R$$

$$S \sim R^{3/2}$$

$$S \sim R^2$$

$$e^{R^{3/2}}$$

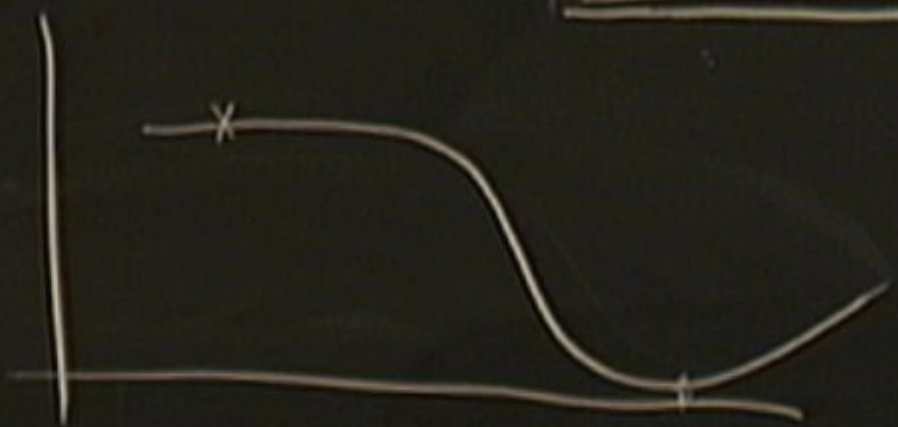
$$\sigma \sim \rho^{3/4}$$

$$S = \int d^3 r \rho^{3/4}(r) \sim \int d^3 r \frac{1}{r^{3/2}}$$

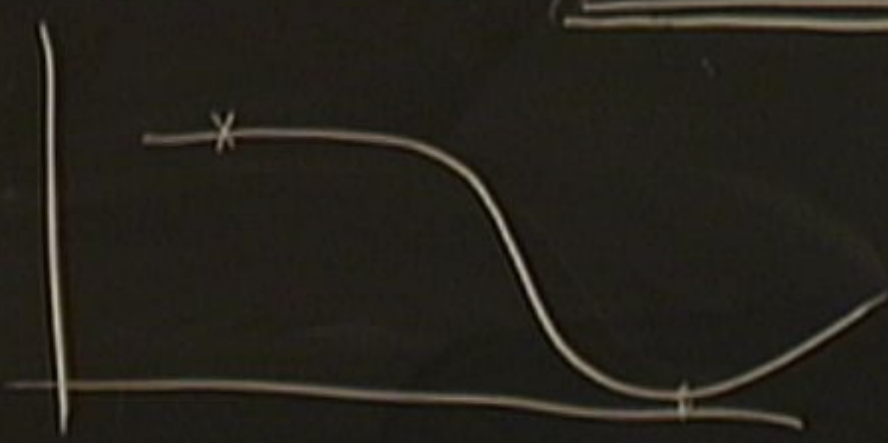
$$\rho(r) \sim \frac{1}{r^2} \sim \frac{1}{r^2}$$

$$M = \int d^3 r \rho(r) \sim \int \frac{d^3 r}{r^2} \sim R$$

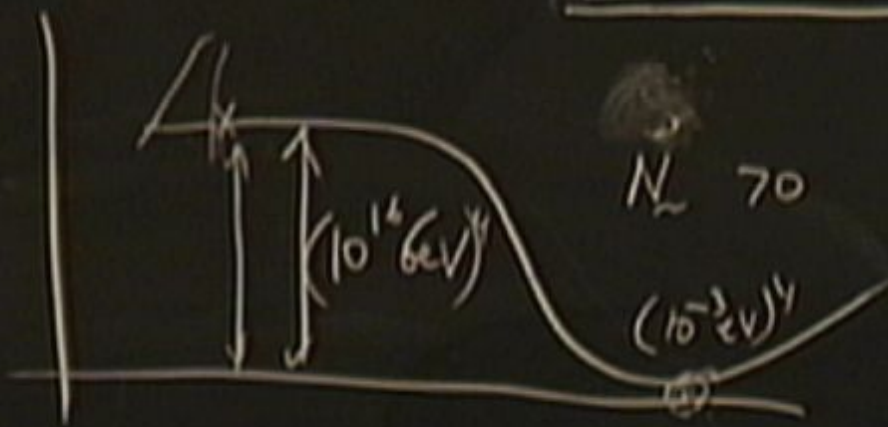
dS-CFT  $\leftarrow$  ?  
FRW-CFT  $\left\{ \begin{array}{l} \text{ACCELERATING} \\ \text{DECELERATING} \end{array} \right.$



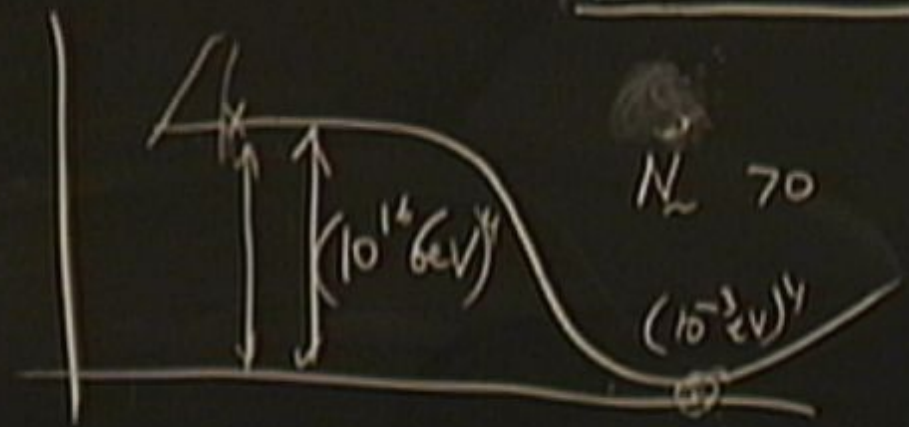
$dS$ -CFT  $\leftarrow$  ?  
 $FRW$ -CFT  $\left\{ \begin{array}{l} \text{ACCELERATING} \\ \text{DECELERATING} \end{array} \right.$



dS-CFT  $\leftarrow$  ?  
 FRW-CFT  $\leftarrow$  ACCELERATING  
DECELERATING



$dS$ -CFT  $\leftarrow$  ?  
 $FRW$ -CFT  $\leftarrow$  ACCELERATING  
DECELERATING



$$S \sim a^3 \sigma \sim \frac{a^3}{c} \rho^{3/4}$$

$$c \sim N_e \rho^{3/4} \quad \lesssim$$