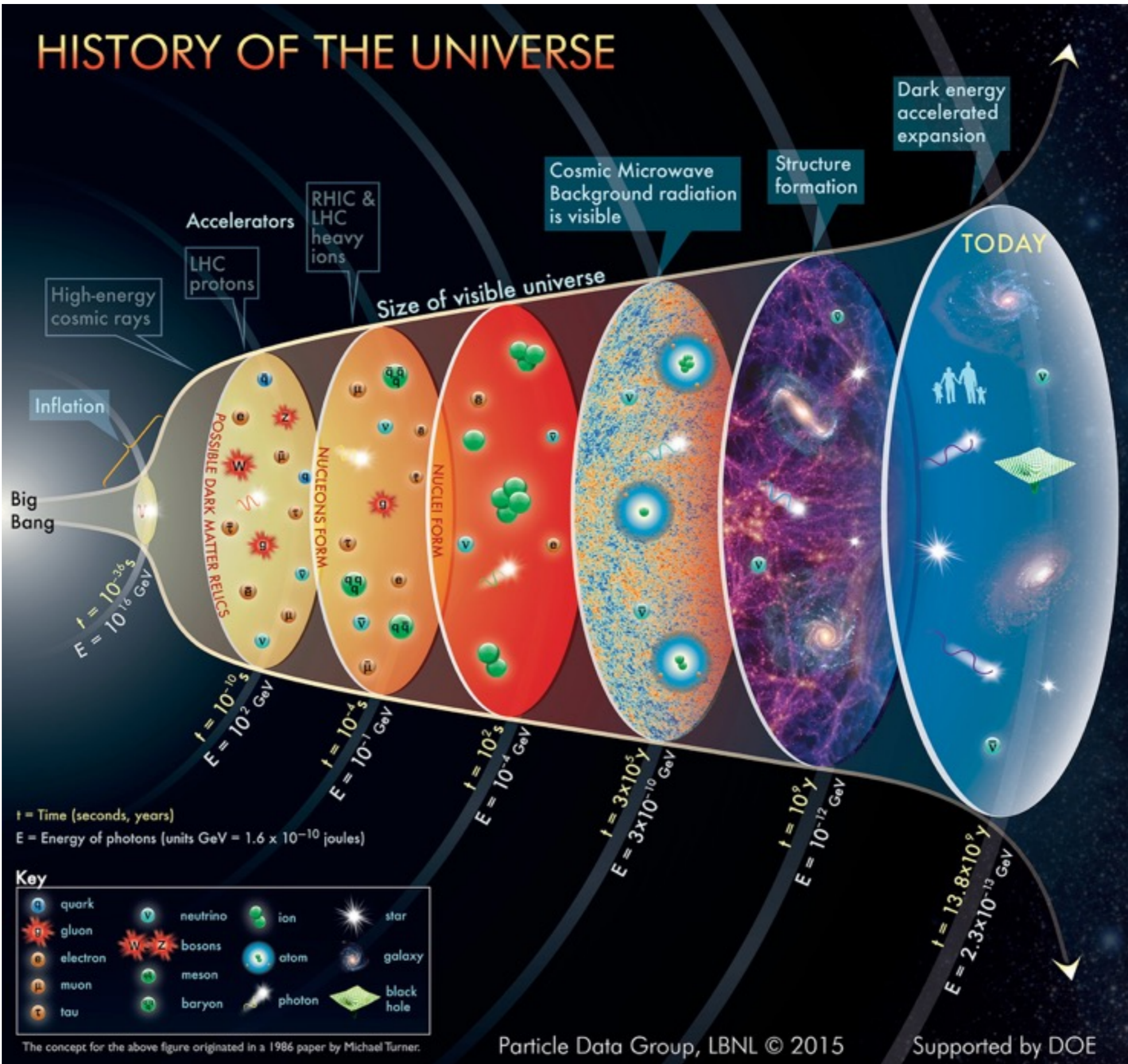


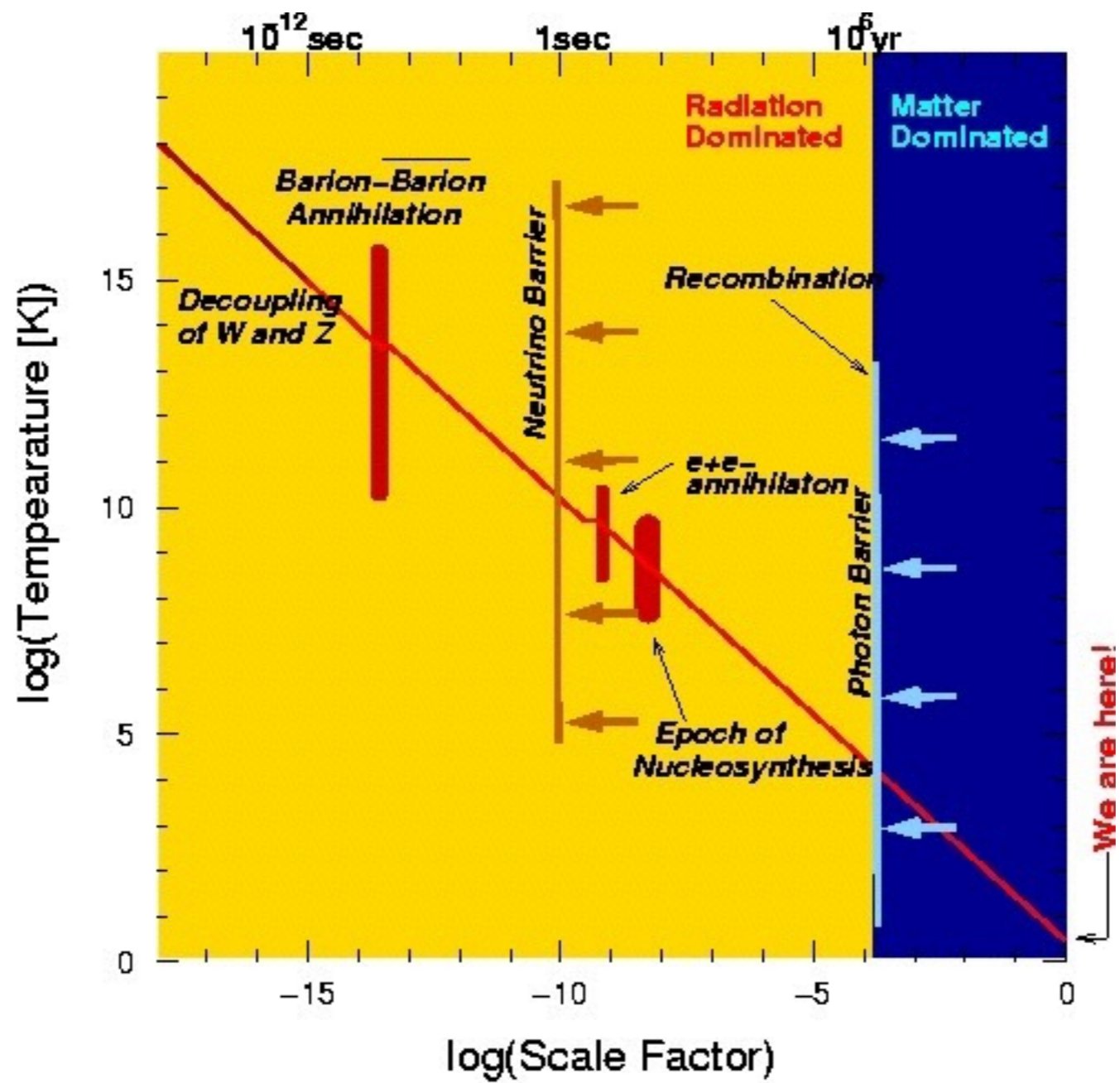
Αστροσωματιδιακή Φυσική

Βιβλιογραφία

- **Claus Grupen, *Astroparticle Physics***
- **Perkins, *Particle Astrophysics***
- **Roos, *Introduction to Cosmology***
- **Liddle, *An Introduction to Modern Cosmology***

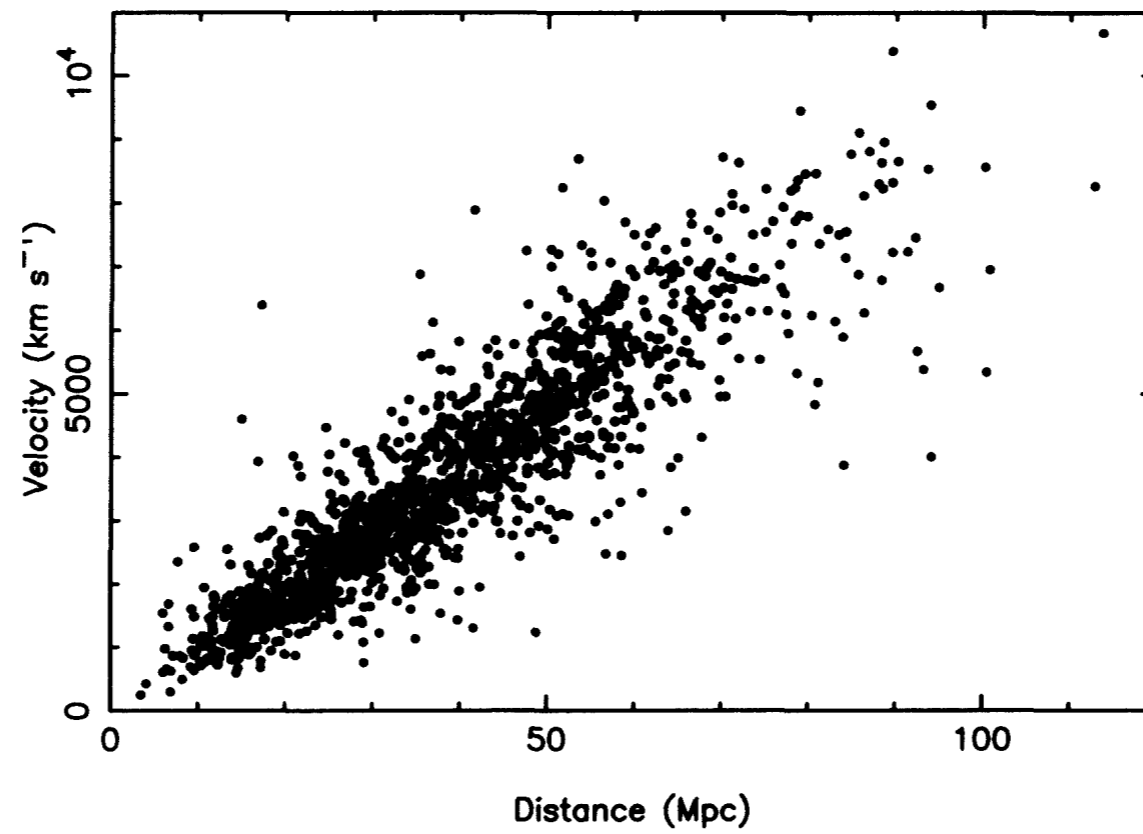
HISTORY OF THE UNIVERSE

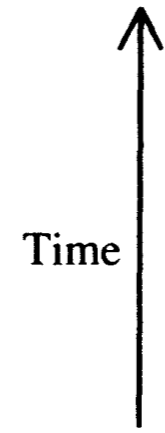
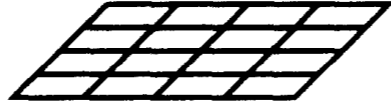
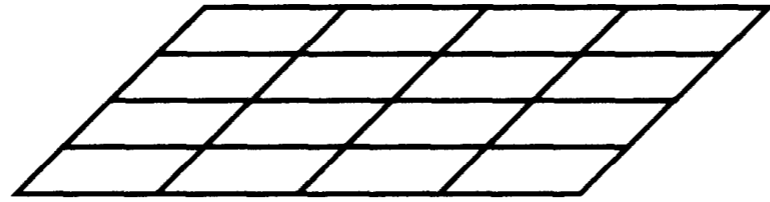
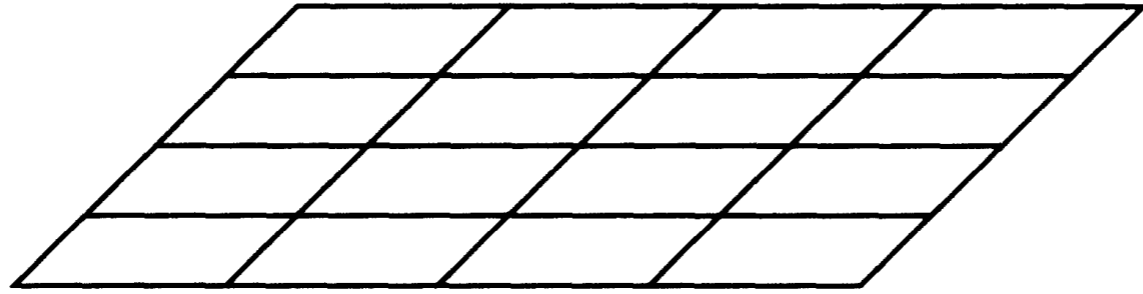




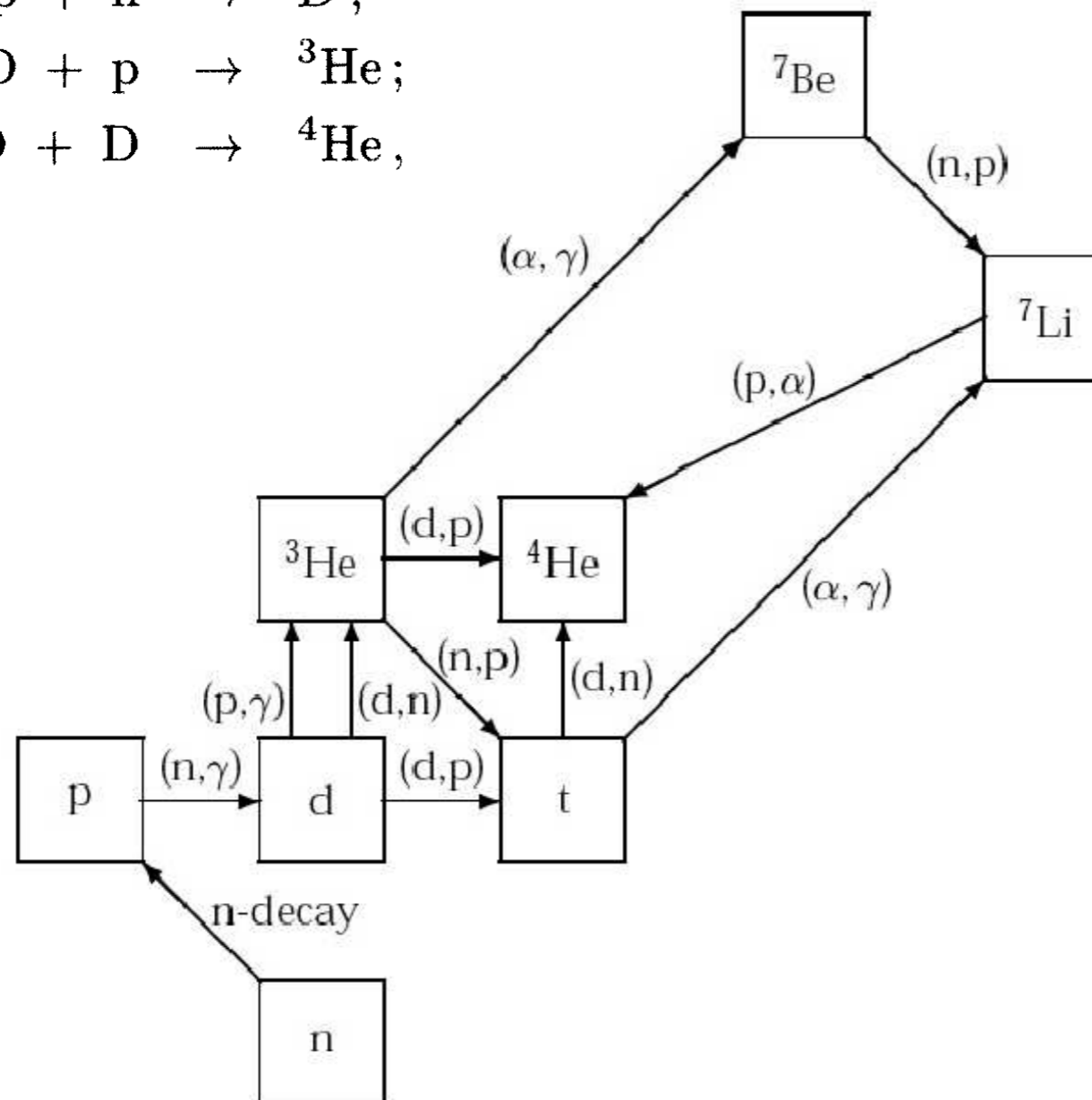
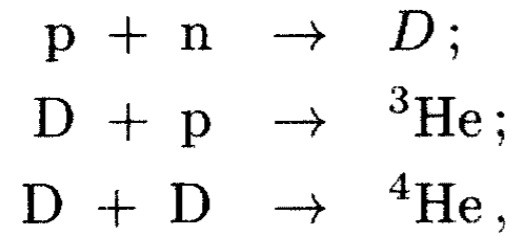
1. Κοσμική διαστολή

Νόμος Hubble

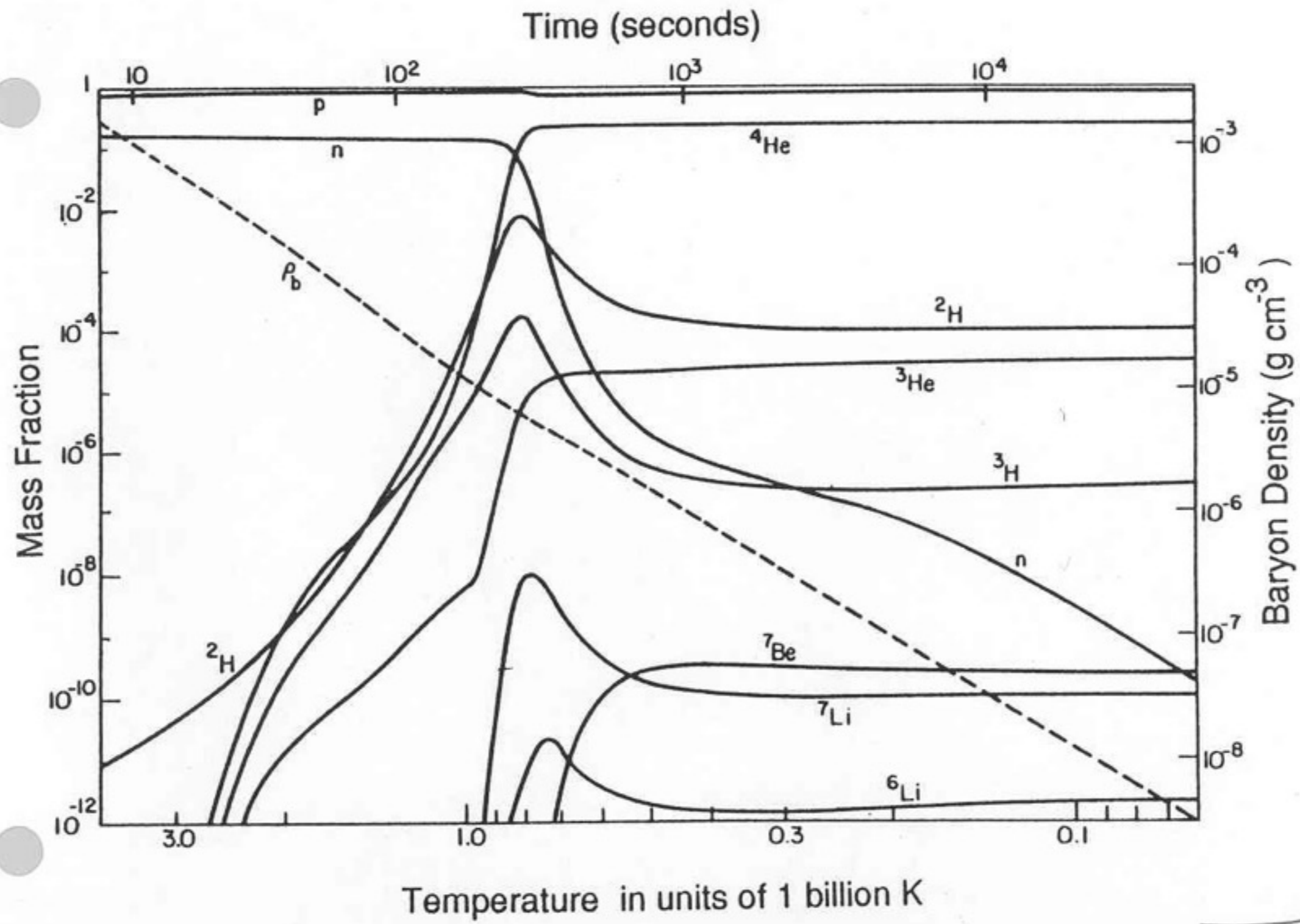


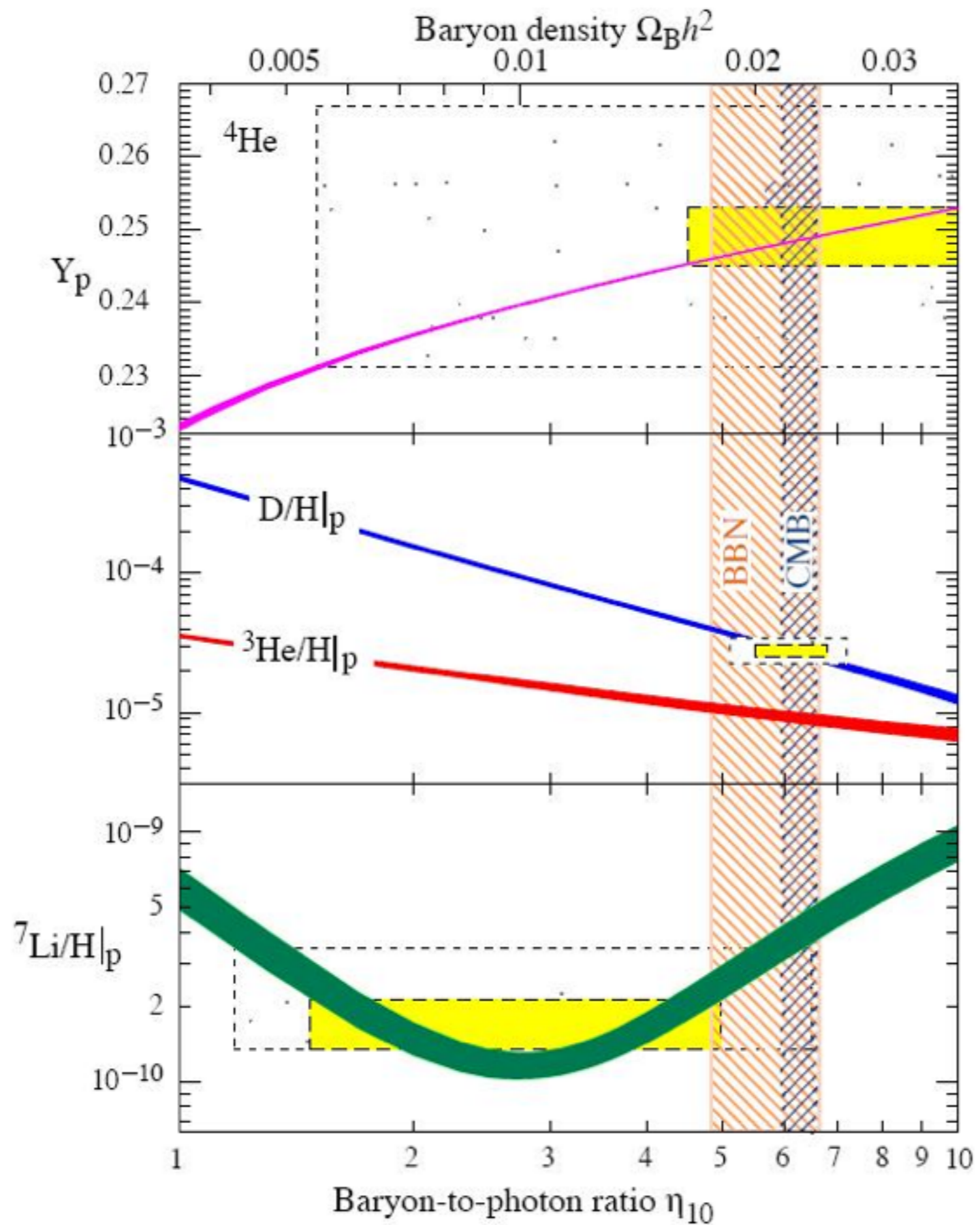


2. Αρχέγονη Πυρηνosύνθεση Bing Bang Nucleosynthesis (BBN)

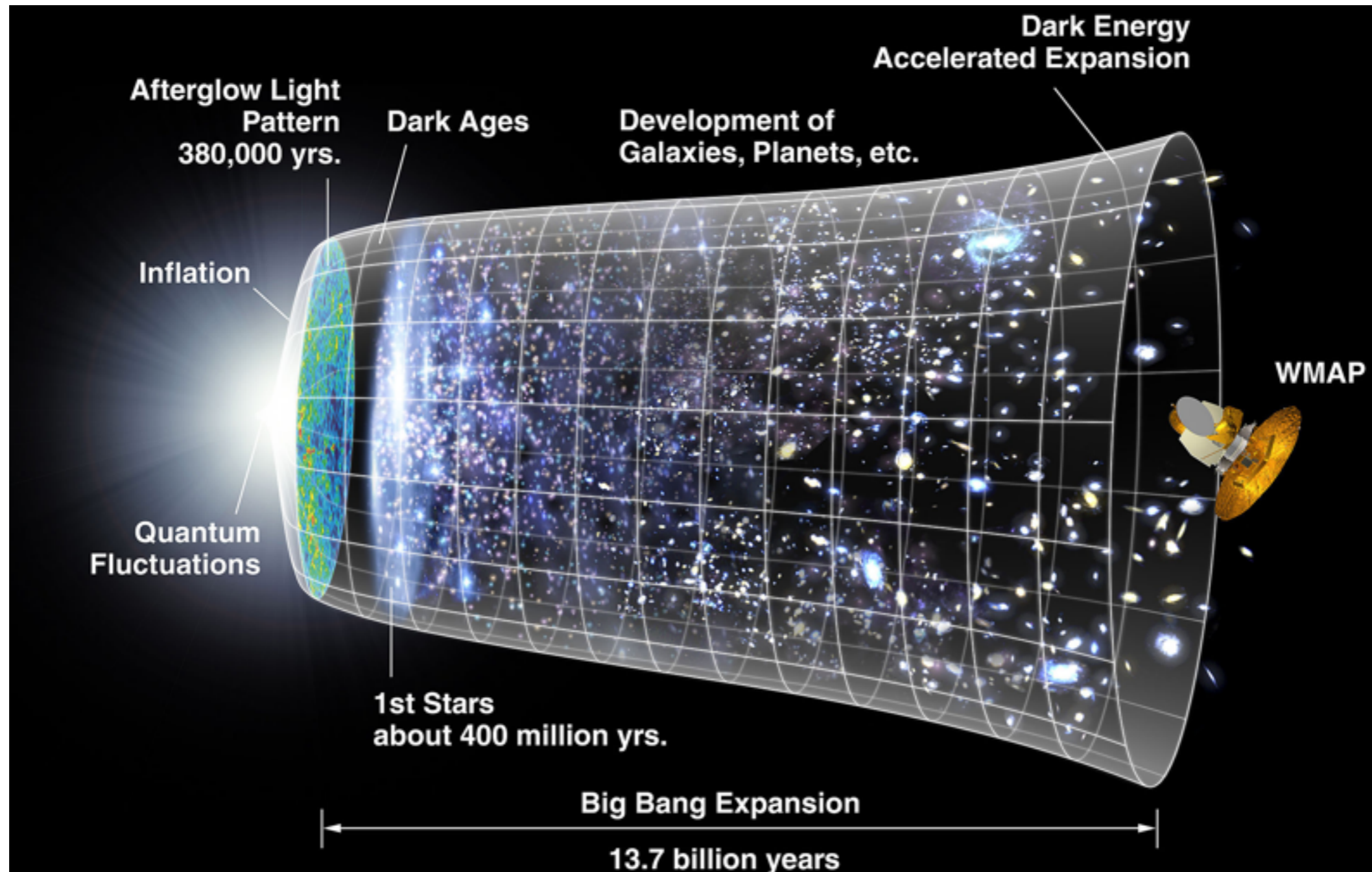


- 11 Αντιδράσεις
- μη σταθεροί $A=5,8$
- Δύο κλάδη ${}^7\text{Li}$





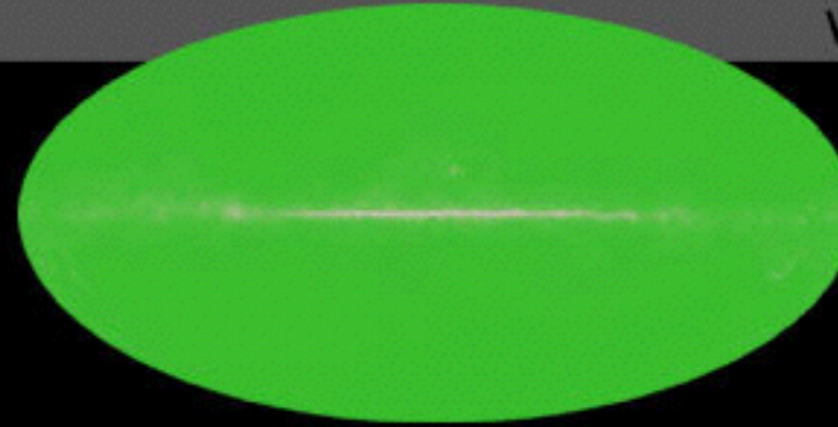
3. Ακτινοβολία κοσμικού υποβάθρου Cosmic Microwave Background (CMB)



1965



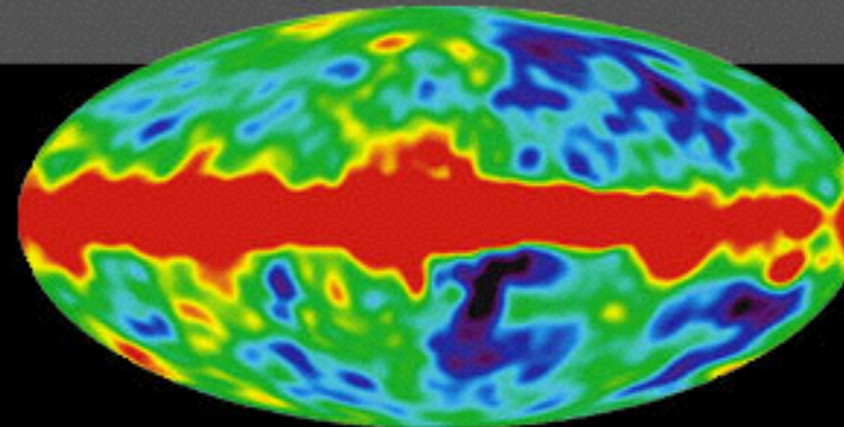
Penzias and
Wilson



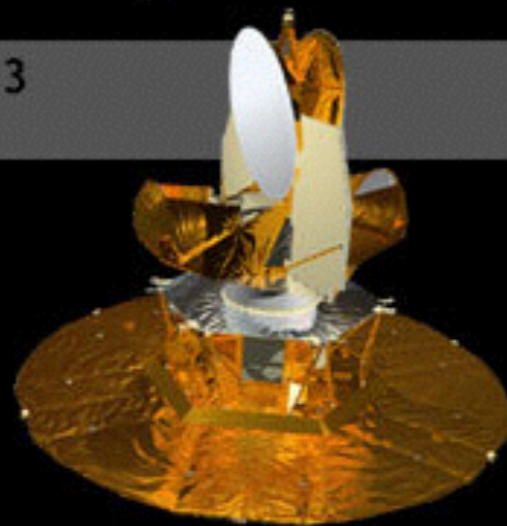
1992



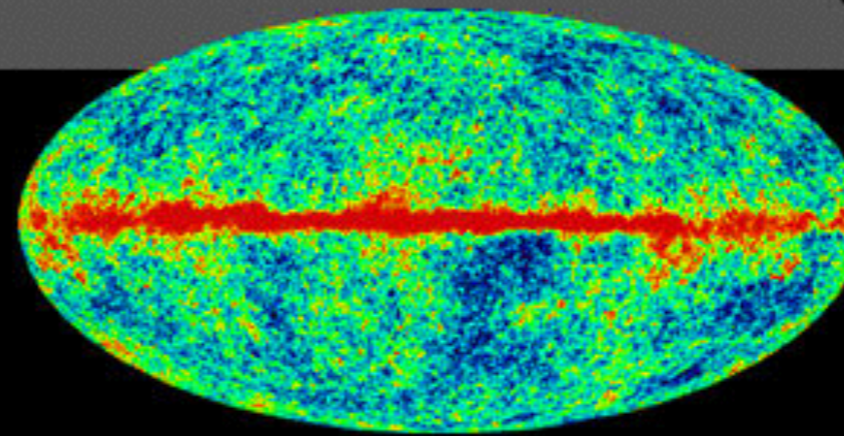
COBE

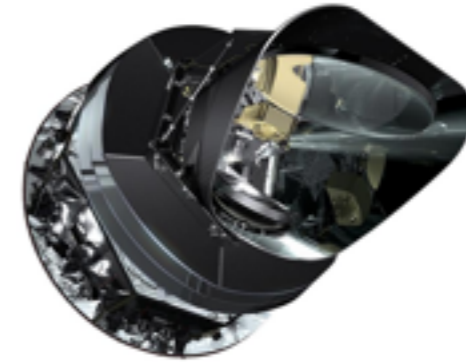
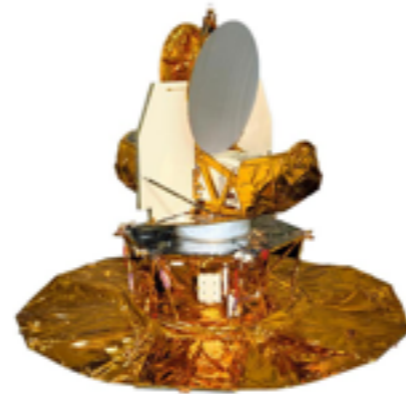


2003

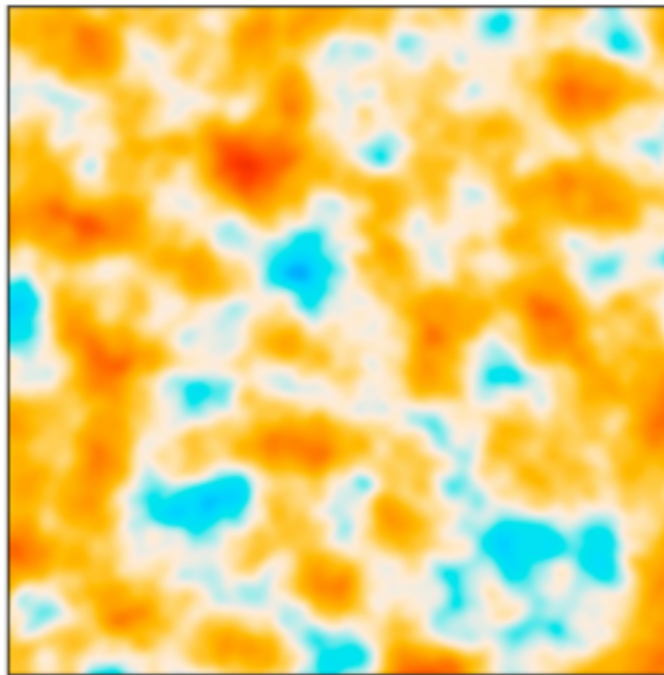


WMAP

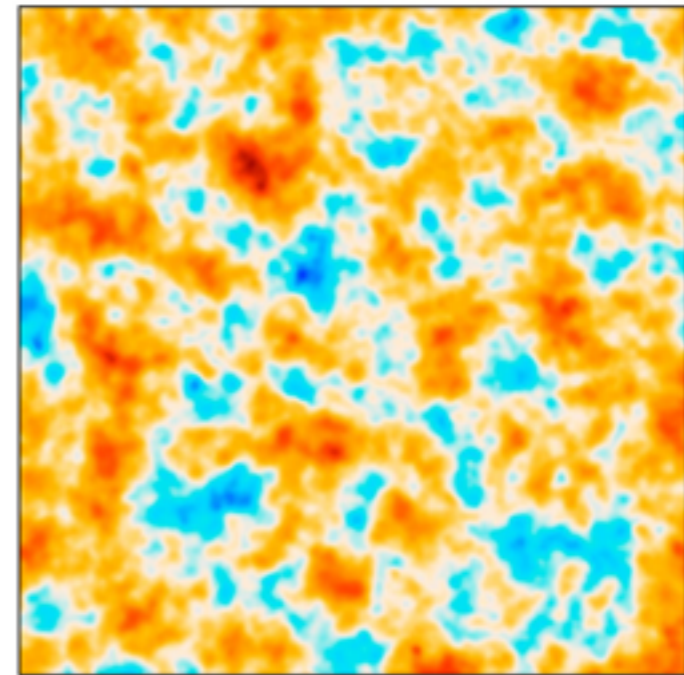




COBE

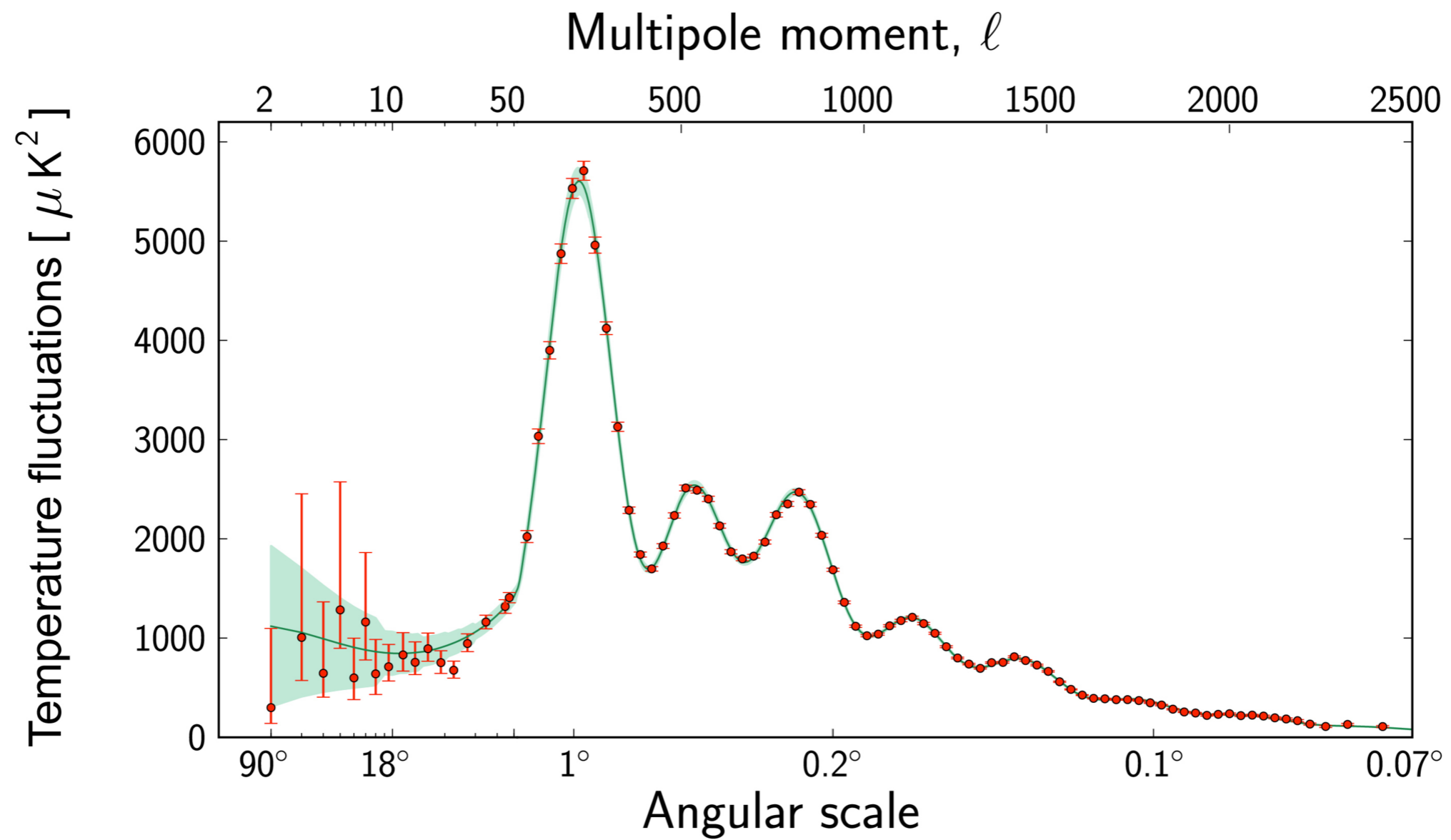


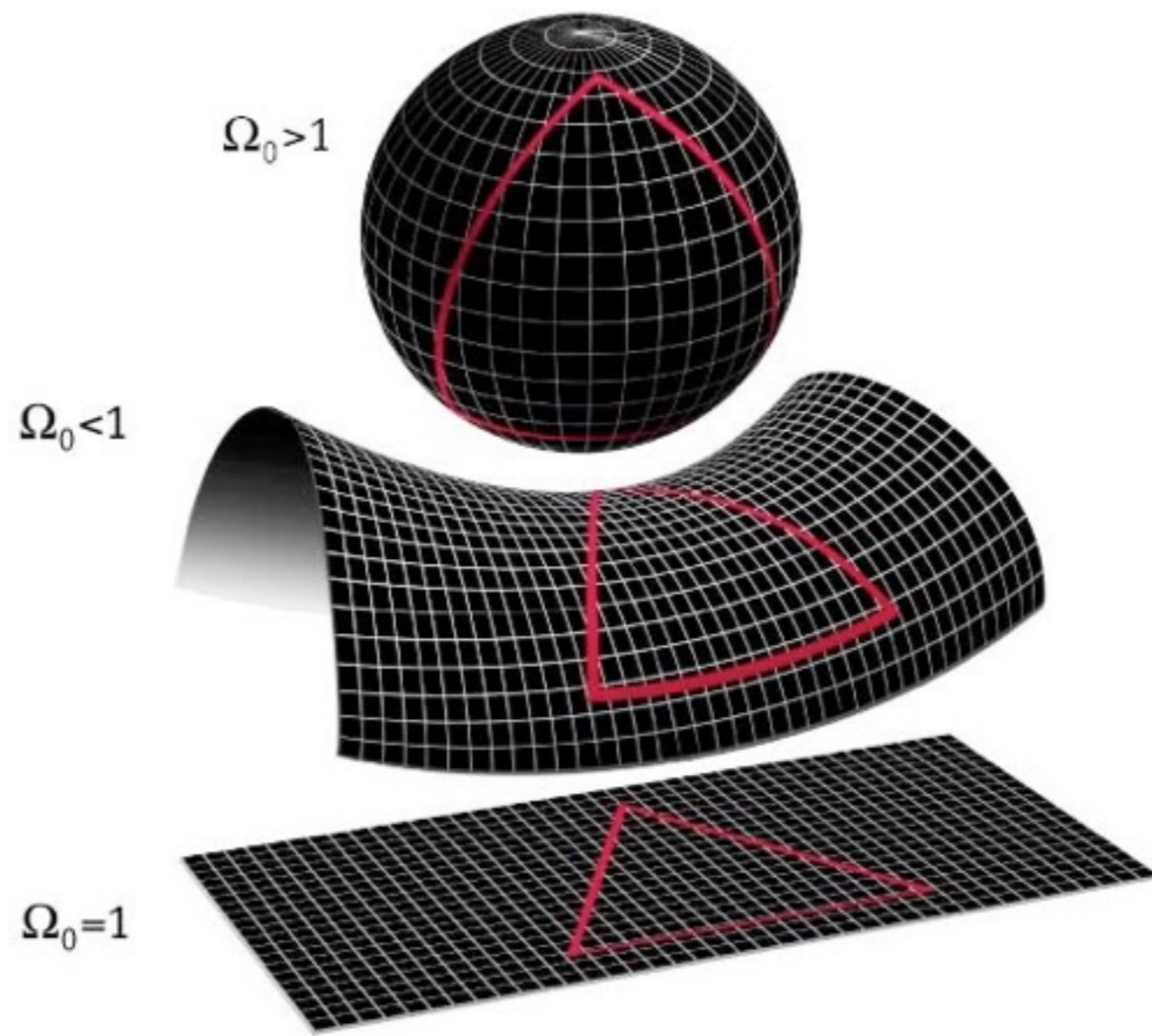
WMAP



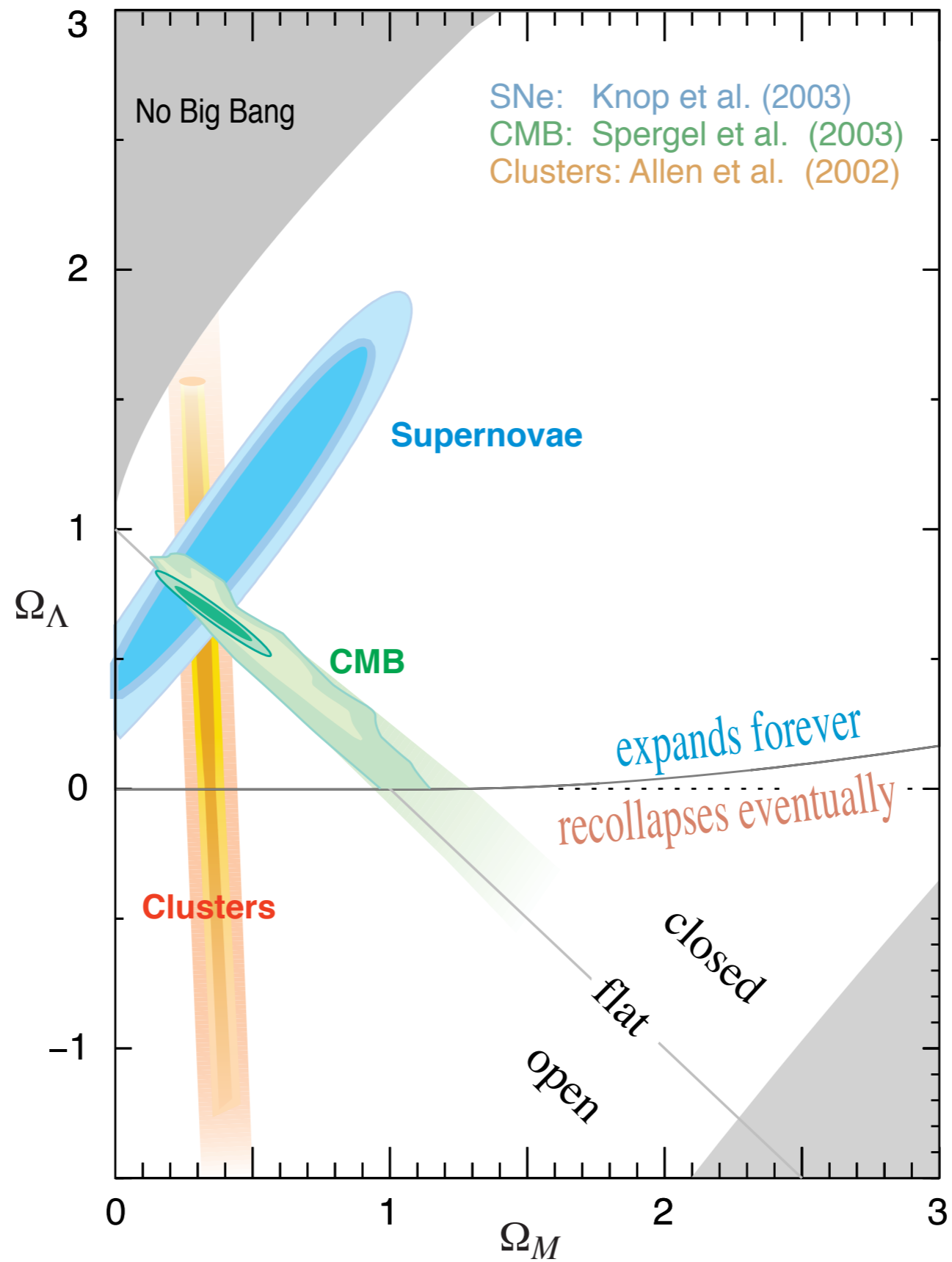
Planck

2009 - 2013 (2016)

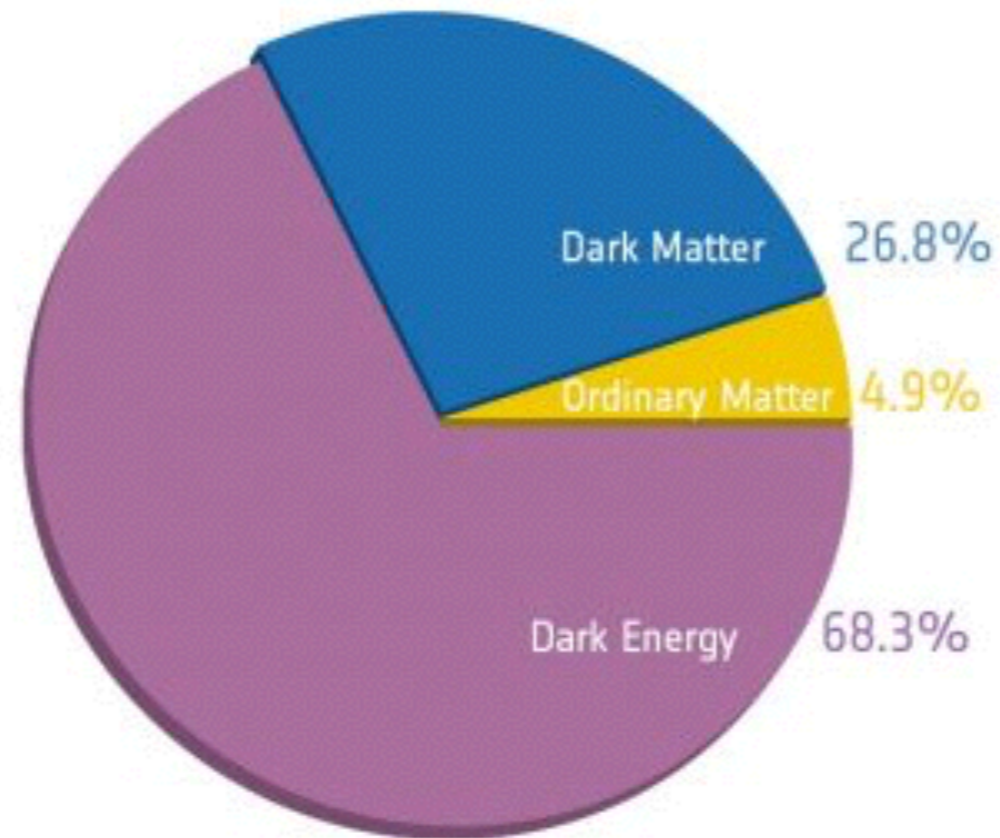




MAP990006



Κοσμολογικό Πρότυπο Λ CDM



Αστροσωματιδιακή Φυσική

Ύλη μαθήματος

- Δυναμική σύμπαντος, Εξισώσεις Friedmann, Σκοτεινή ενέργεια
- Σύσταση, ηλικία Σύμπαντος, αστροχρονολόγηση
- Θερμοδυναμική, Σκοτεινή ύλη
- *BBN*
- *CMB*
- *Πληθωρισμός*