



KOREA INSTITUTE FOR ADVANCED STUDY

Concluding remarks

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WKYC2011 future of large scale structure June 27 – July 1, 2011

Progress in Cosmology (in last 50 years)

- 1965 Discovery of CMB Strong evidence for Bingbang Universe
- 1980~ Revelation of Large Scale Structure Cosmological Perturbation Theory Particle Cosmology/Inflationary Universe
- 1992 Detection of CMB anisotropy Evidence for Inflationary Universe
- 2003 Accurate CMB angular spectrum Confirmation of Flatness of the Universe Strong evidence for Dark Energy



SDSS-III Lyman- α cloud map 3D map of distant universe z=2~3

Not observed by SDSS III

CMB



Theory

N-body simulation

horizon-size ~ 10^12 particles or more more physics inputs GR effects

Perturbation theory

2nd order, 3rd order,... post-Newtonian `improved' theories gradient expansion

• Inflationary models / gravity theories

specific/testable predictions viable alternatives?

BOSS, PLANCK & beyond

• finer, deeper maps of the universe

systematics, systematics, systematics,...

but systematics contain physics!

gravitational lensing, galaxy biasing, bulk velocities,

primordial non-Gaussianity

• testing:

dark energy/dark matter/... particle physics models models of the early universe general relativity

.....

gravitational wave astronomy !

future is yours!

(and hopefully some is mine, too...)

See you at next WKYC!