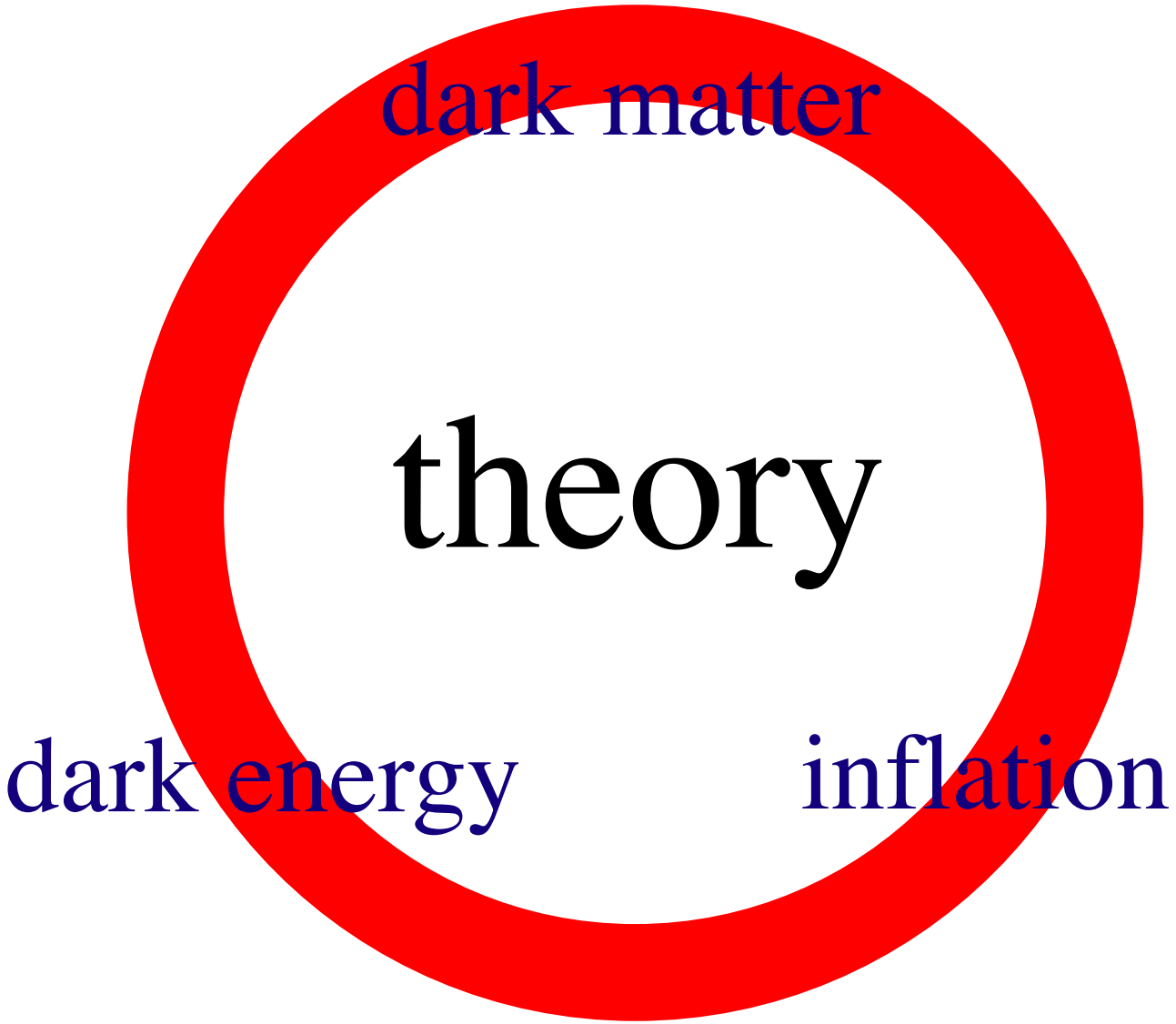
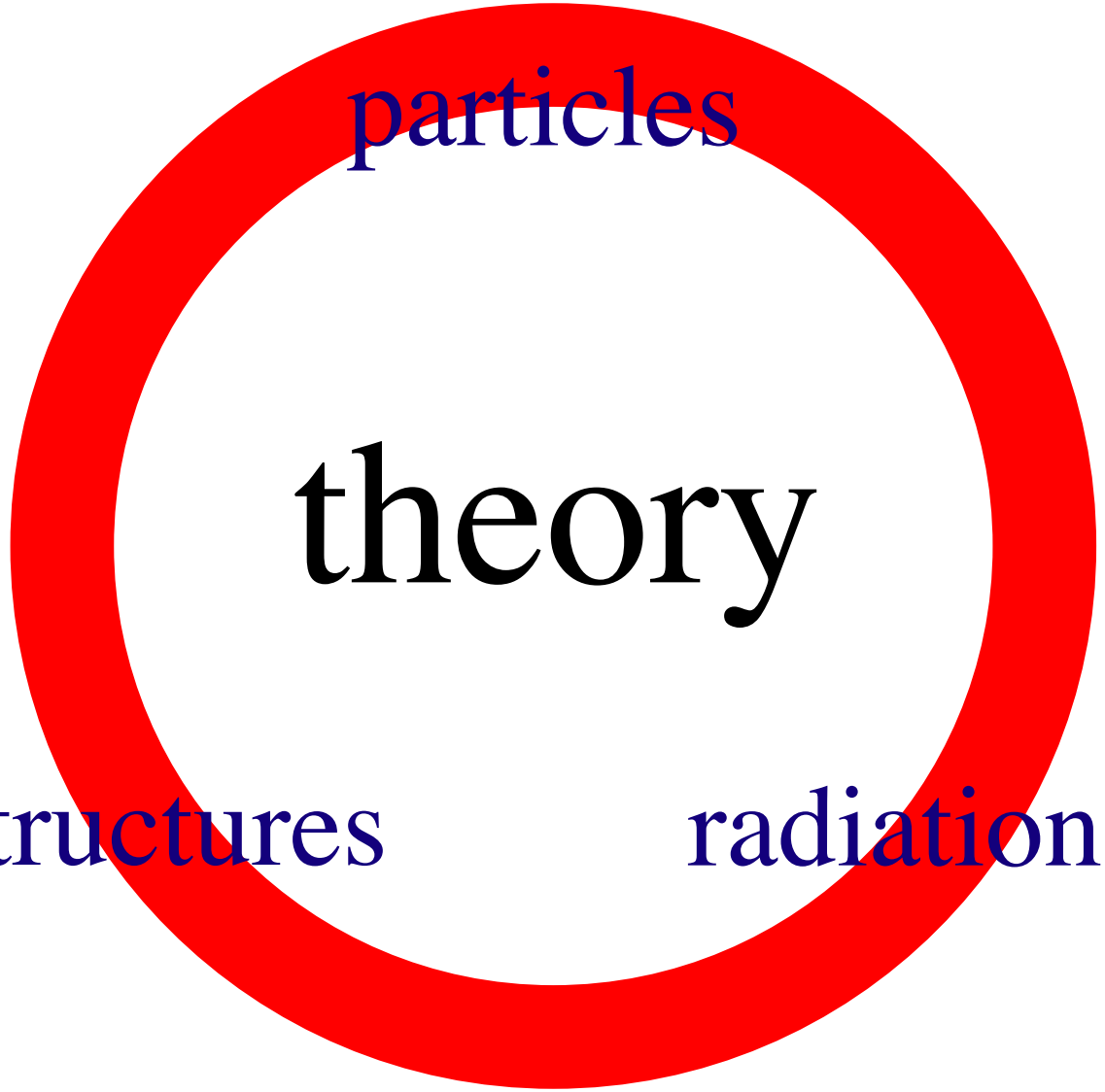
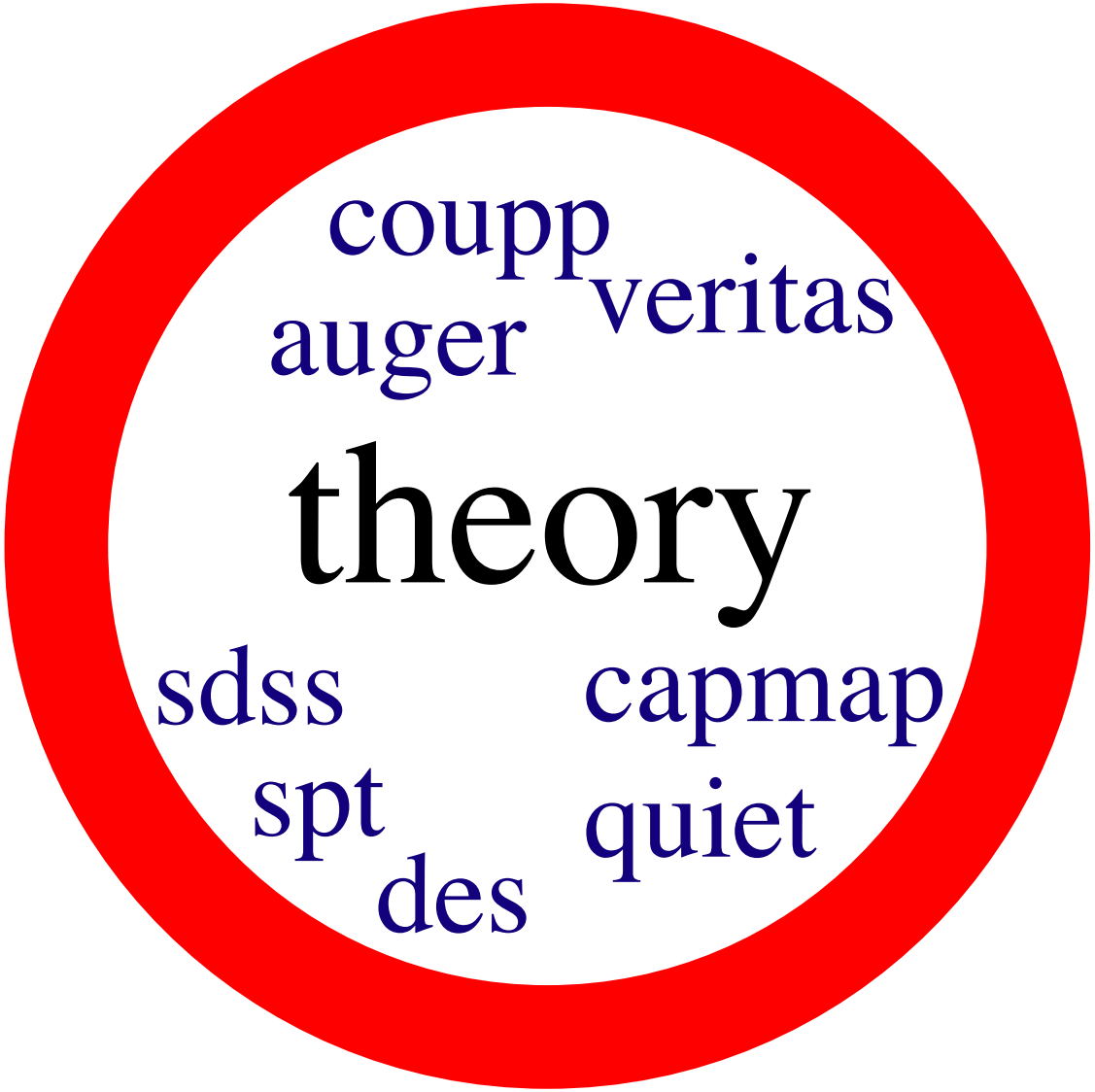
Theory MRC: Episode I



Theory MRC: Episode I



Theory MRC: Episode I



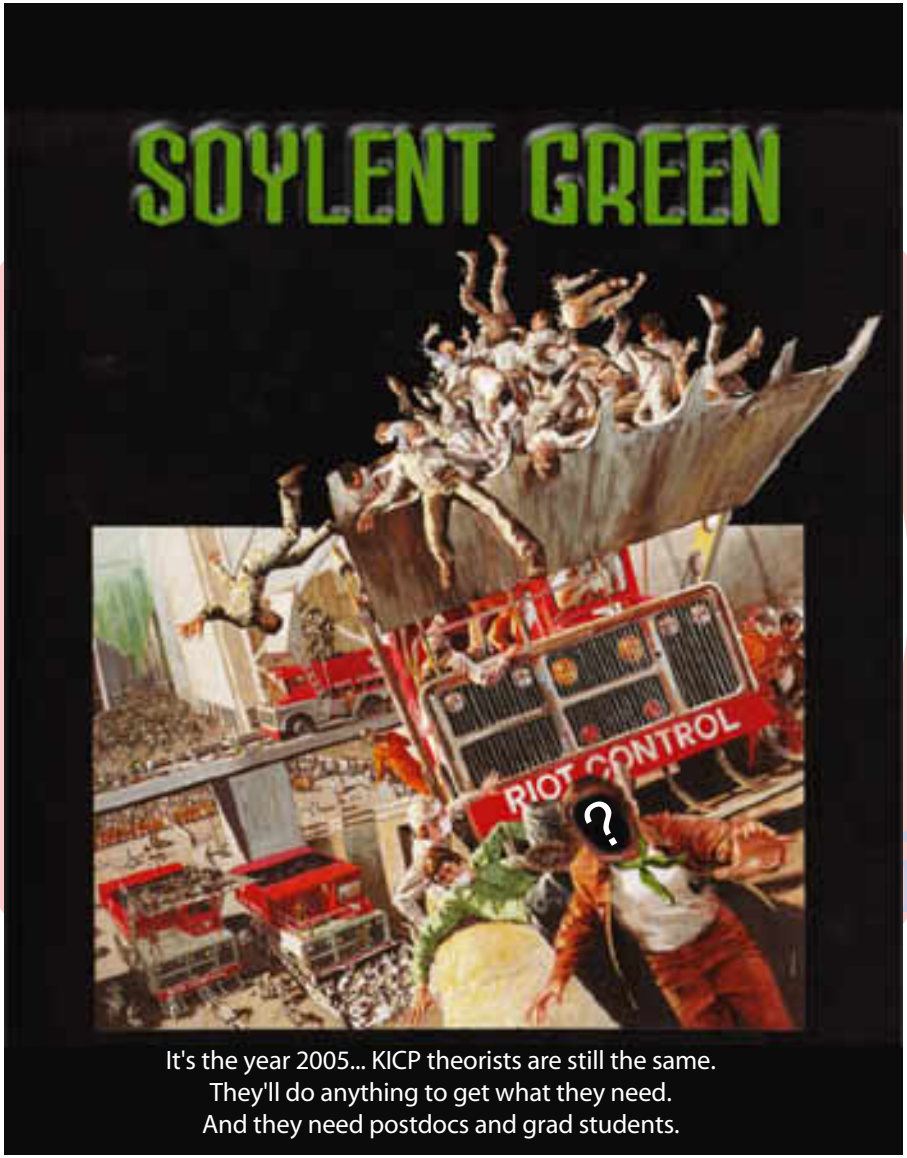
Theory = People

Episode I

Fellows:
Chris Gordon
Dragan Huterer*
Hiranya Peiris*
Yong-Seon Song*
Xiaomin Wang

Faculty:
[Sean Carroll]
Wayne Hu

*externally funded



Episode II

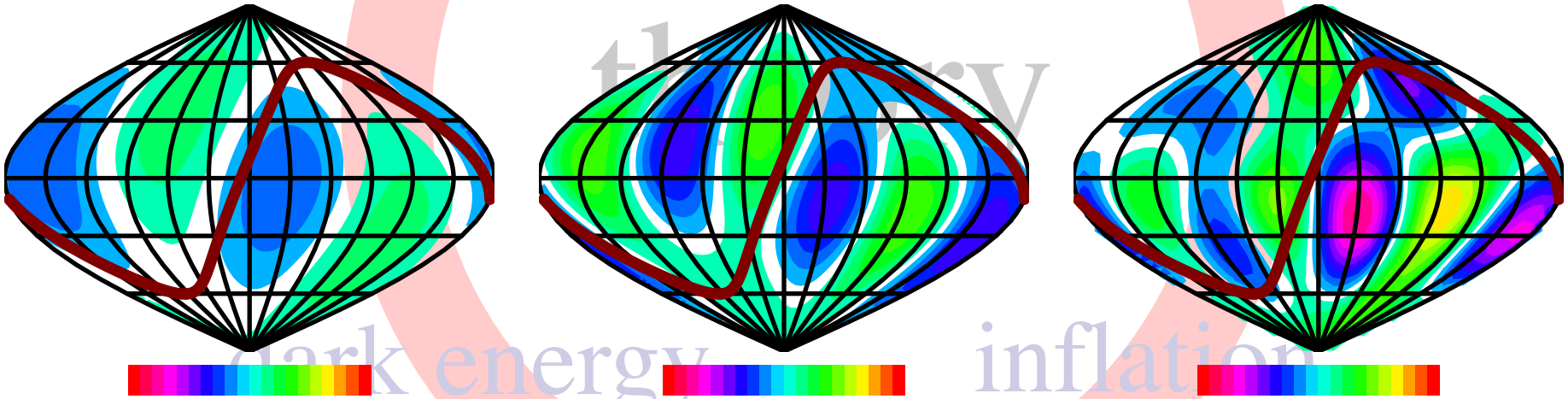
Fellows:
Erin Sheldon
Risa Wechsler*
Andrew Zentner

Faculty:
[Josh Frieman]
Andrey Kravtsov
[Angela Olinto]

Radiations: CMB Anomalies

- Low multipole alignments

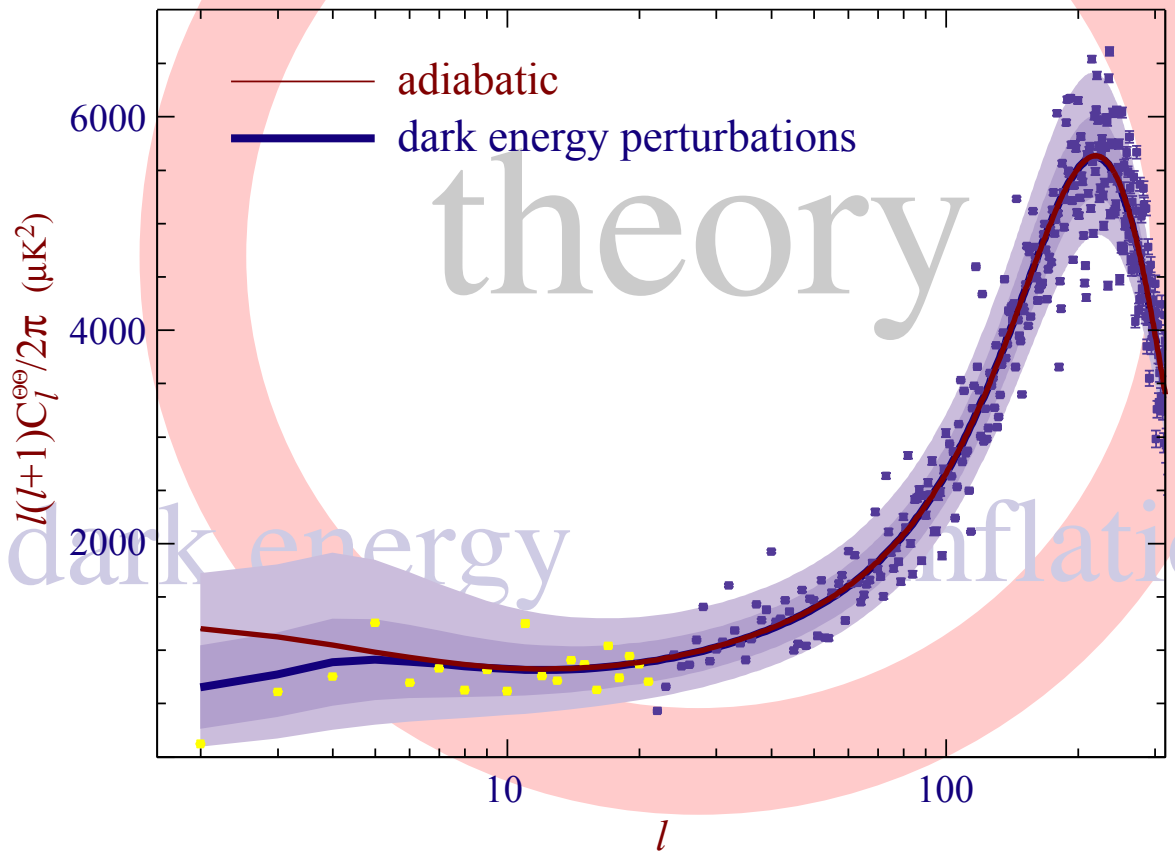
[Schwartz, Starkman, Huterer, Copi 2004]



dark matter
dark energy
inflation

Radiations: CMB Anomalies

- Correlated dark energy perturbations and low multipole power [Gordon & Hu 2004]



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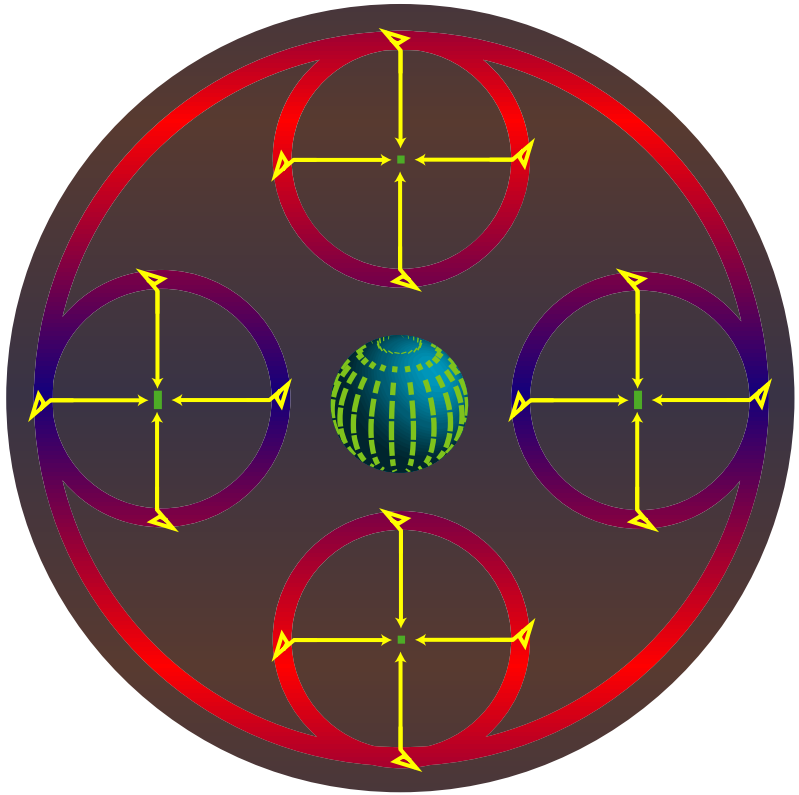
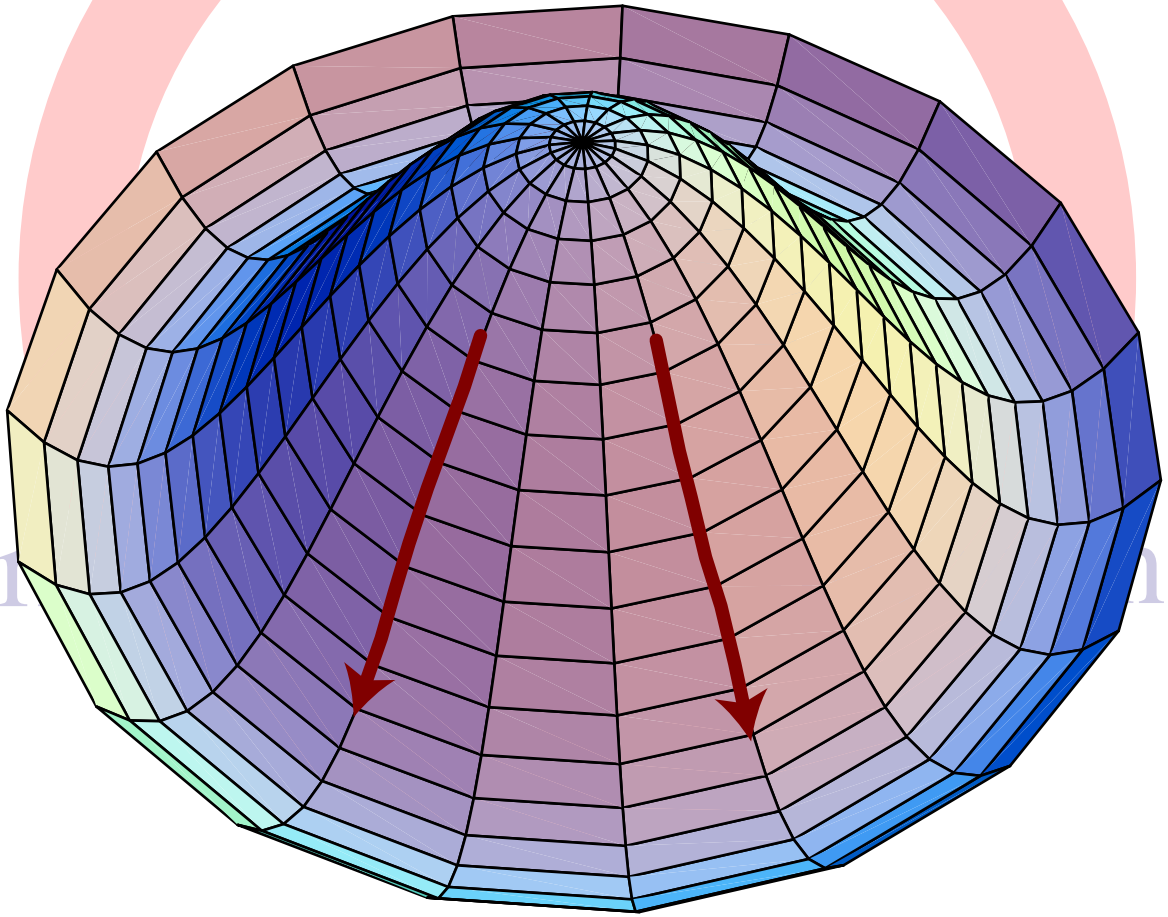
Radiations: CMB Anomalies

- Explanations of low power distinguished by polarization & cross correlation [Gordon & Hu 2004]



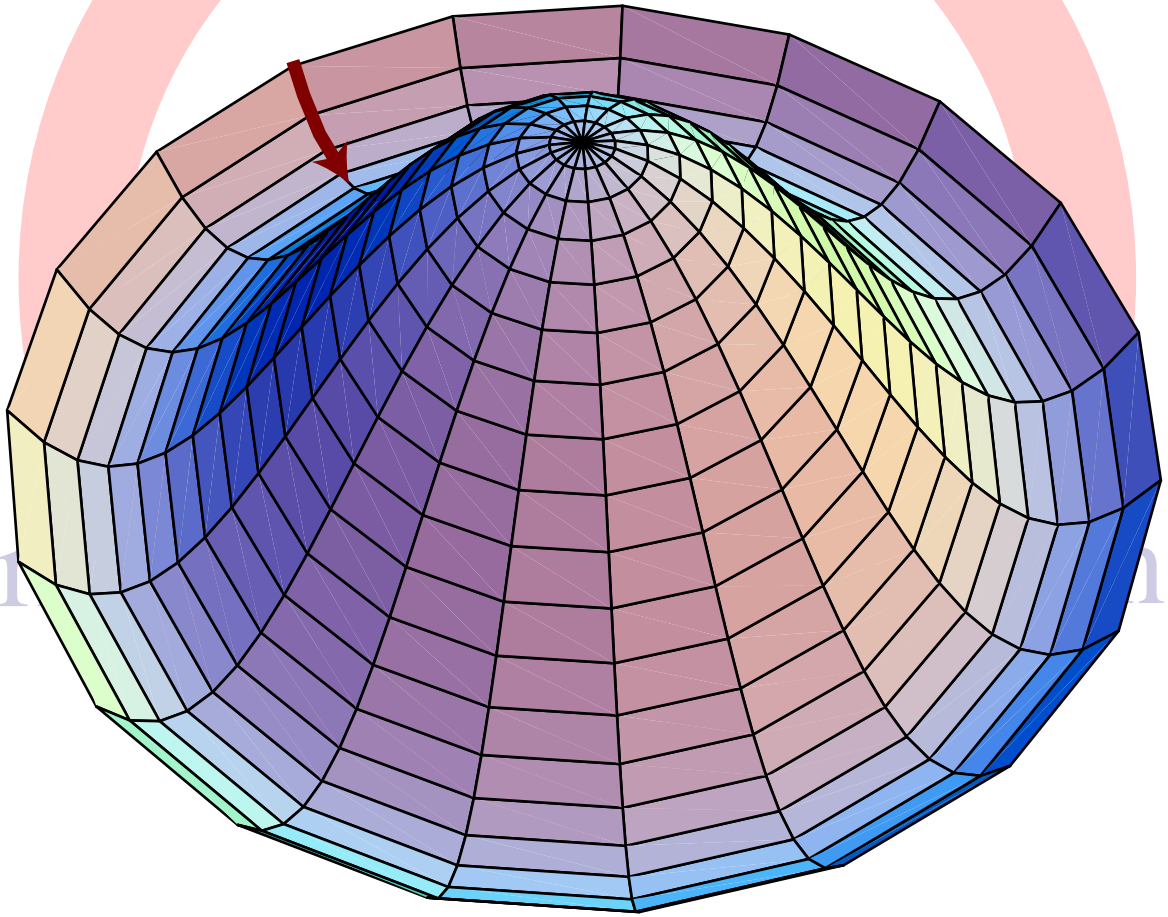
Radiations: Inflation

- Tachyonic amplification of dark energy perturbations [Gordon & Wands 2005]



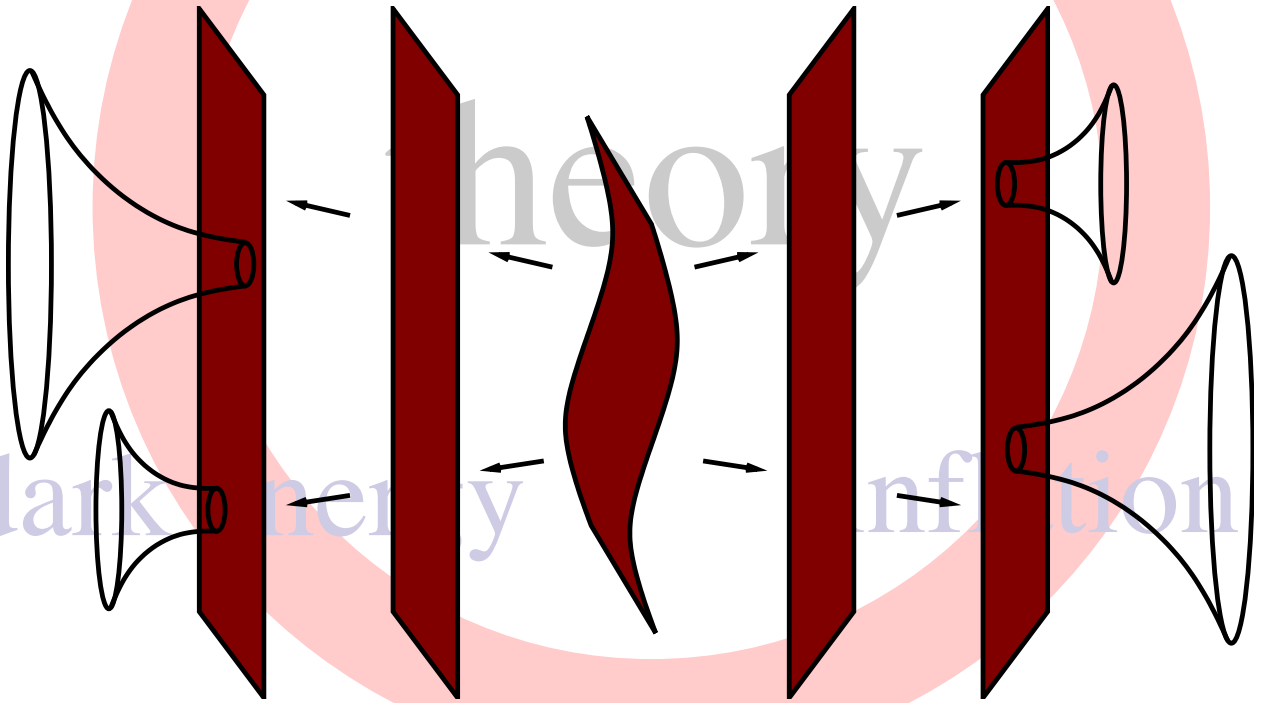
Radiations: Inflation

- Quintessential inflation [Rosenfeld & Frieman 2005]



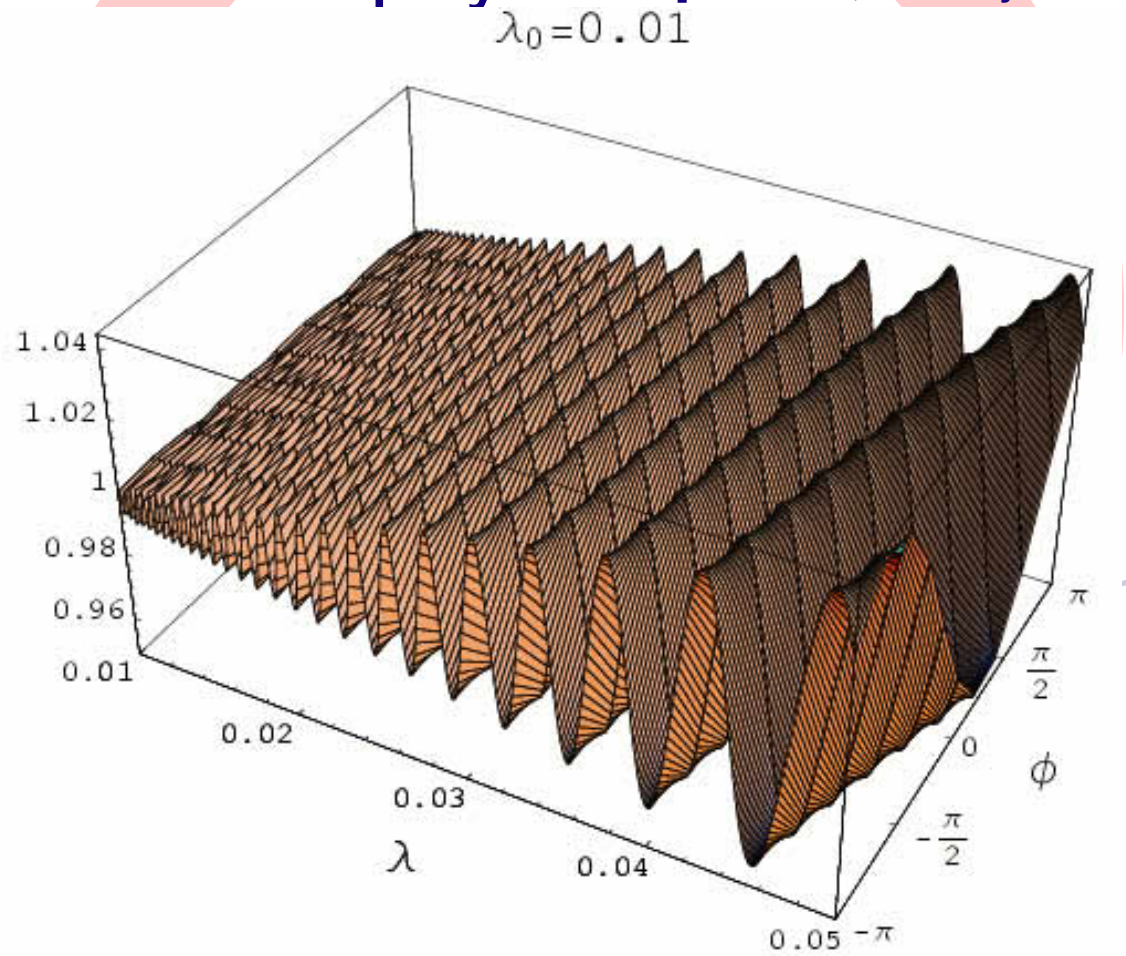
Radiations: Inflation

- Low entropy initial conditions for inflation as thermal fluctuations in deSitter [Carroll & Chen 2005]



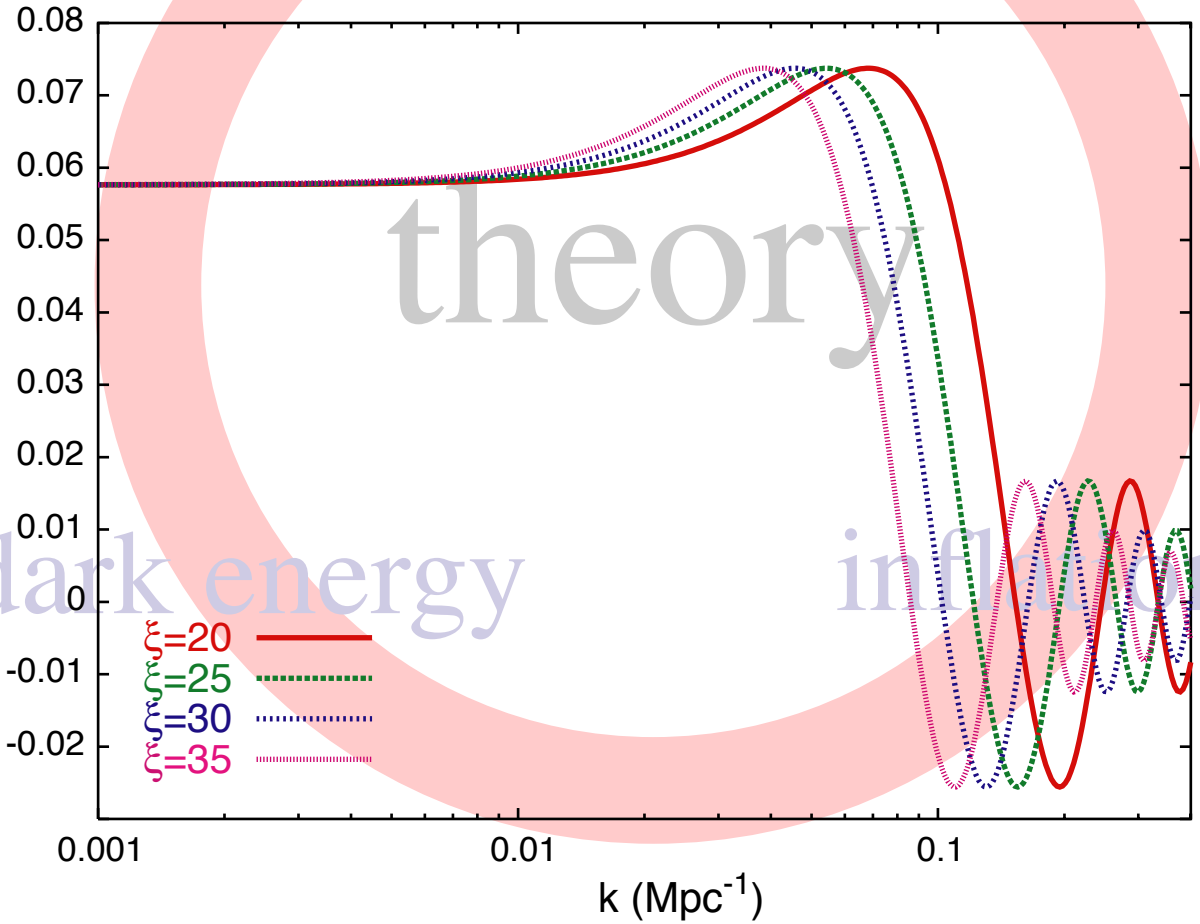
Radiations: Inflation

- Features in the initial power spectrum: Trans-Planckian physics [Easther, Kinney & Peiris 2004; 2005]



Radiations: Inflation

- Features in the initial power spectrum: inflation curvature features [Kadota, Dodelson, Hu & Stewart 2005]



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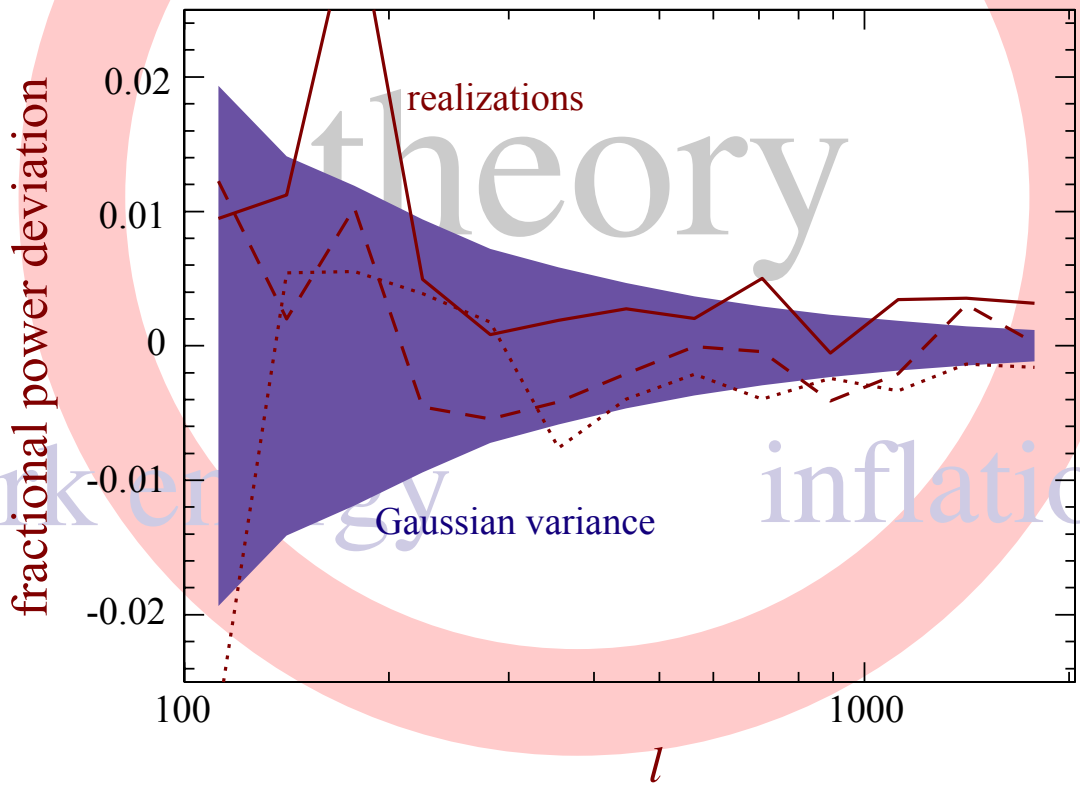
Radiations: Neutrinos

- CMB B-modes from lensing: non-Gaussianity limits information on neutrinos [Smith, Hu, & Kaplinghat 2004]



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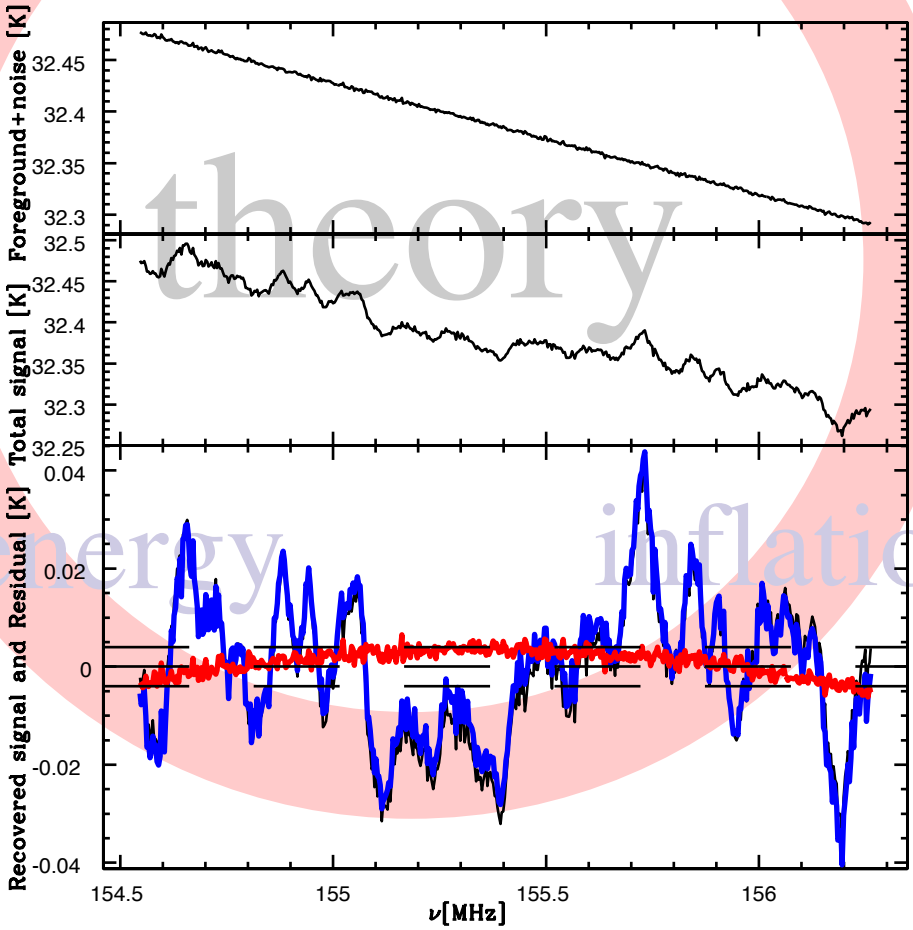
Radiations: Reionization

- 21cm emission removal of foregrounds with CMB techniques [Wang, Tegmark, Santos, & Knox 2005]



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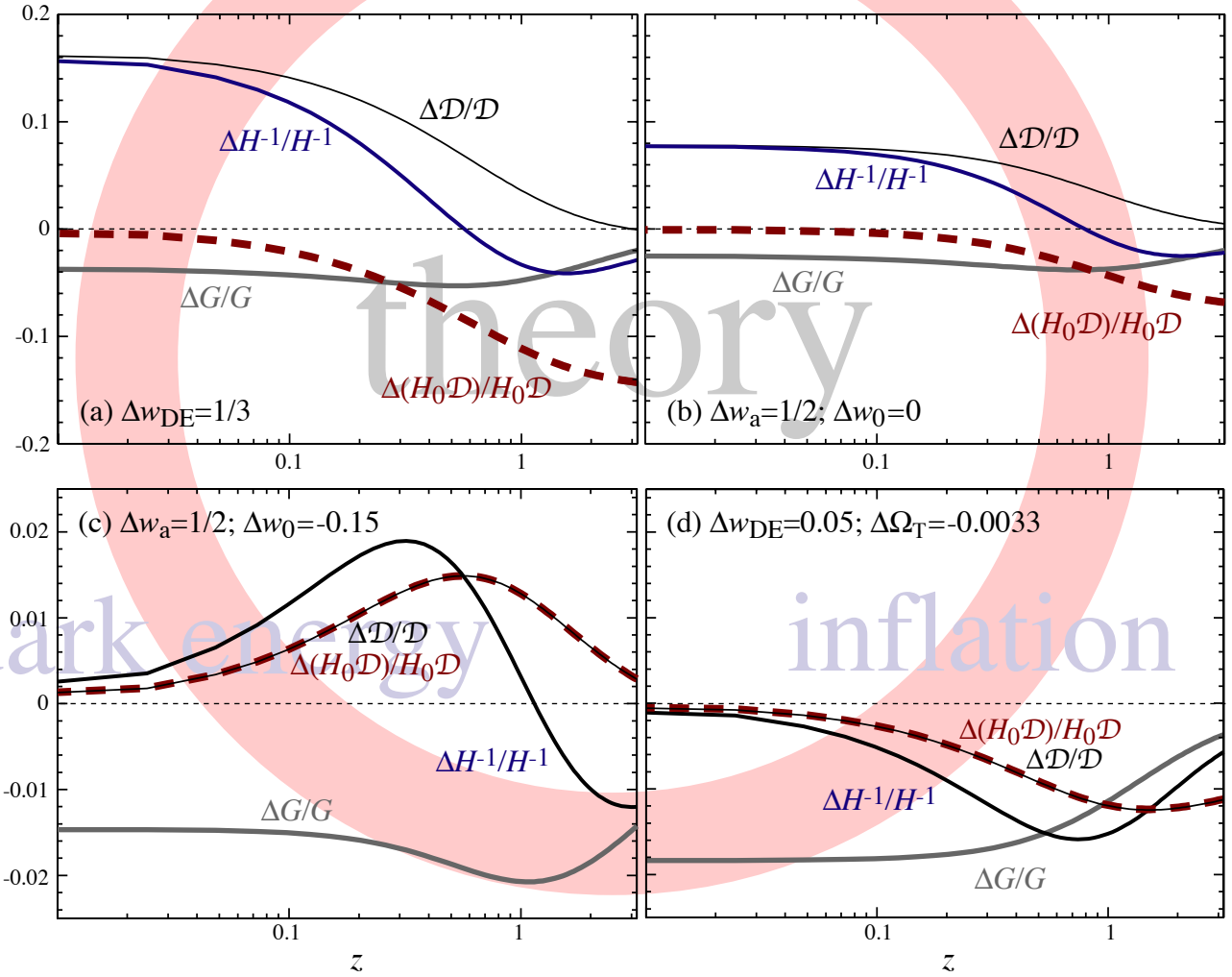
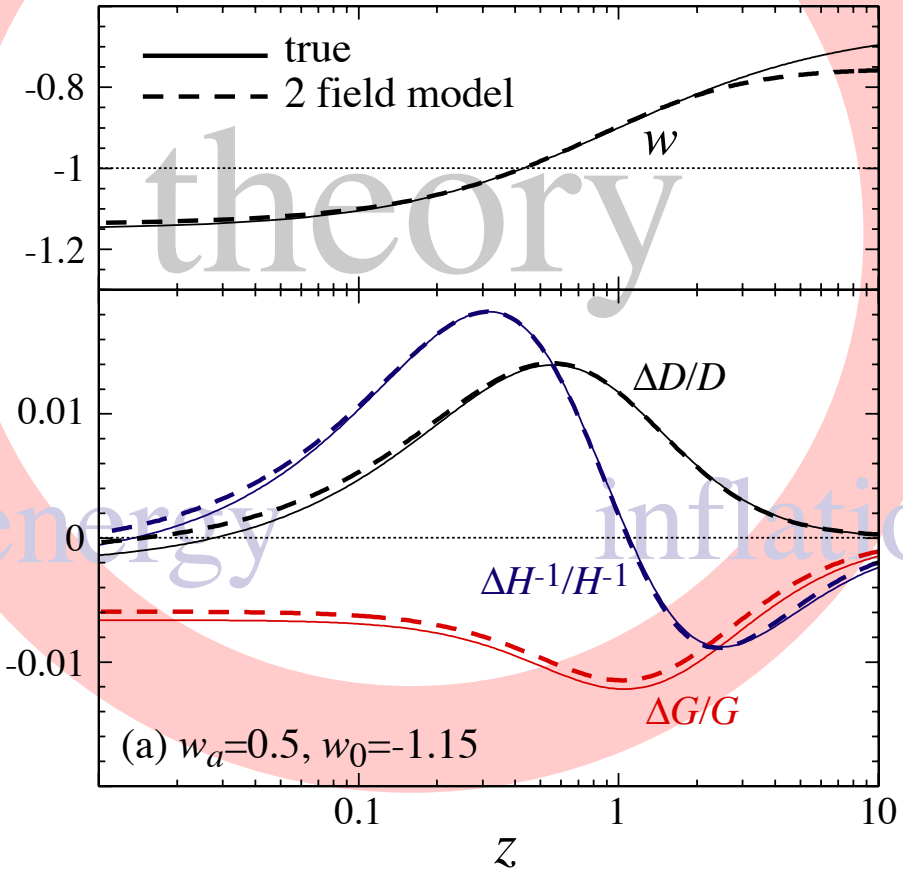
Structures: Dark Energy

- Dark energy probes in light of the CMB [Hu 2004b]



Structures: Dark Energy

- Gravitational instability across phantom divide: dark energy internal degrees of freedom [Hu 2004c]



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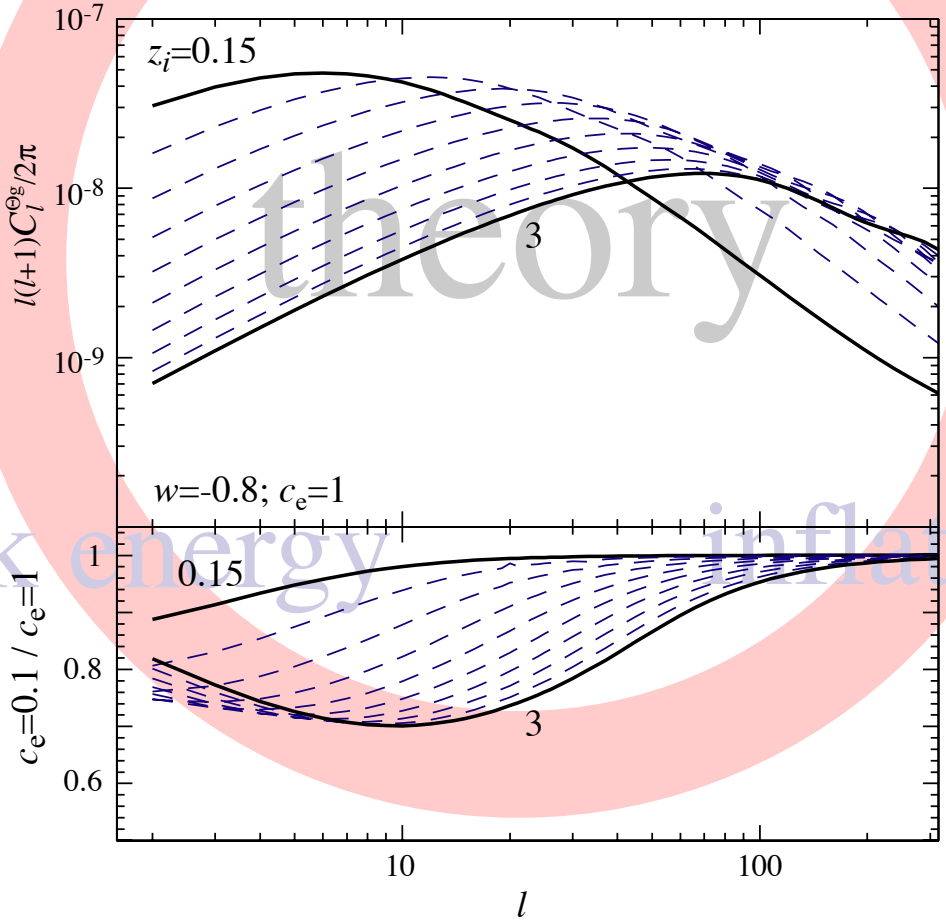
Structures: Dark Energy

- Clustering of the dark energy from galaxy-ISW correlation [Hu & Scranton 2004]



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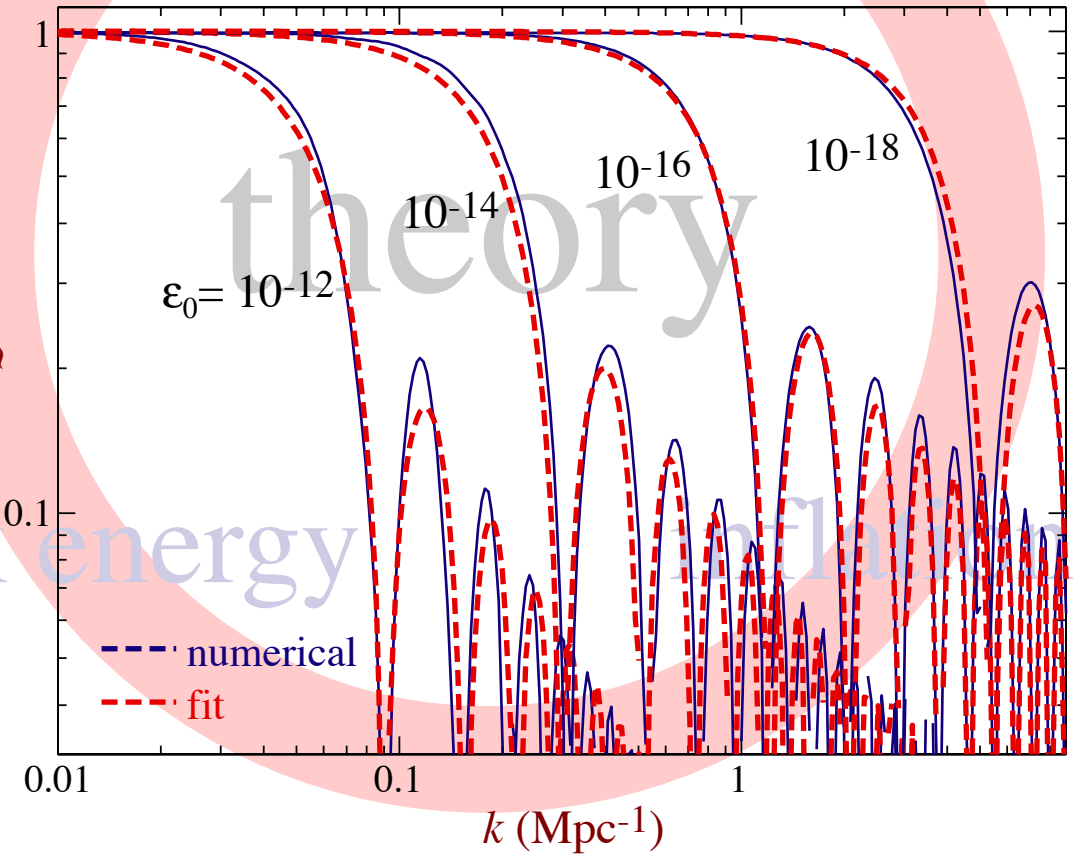
Structures: Dark Energy

- Ghost-condensate "unified" dark matter/energy tested by small scale structure [Giannakis & Hu 2005]



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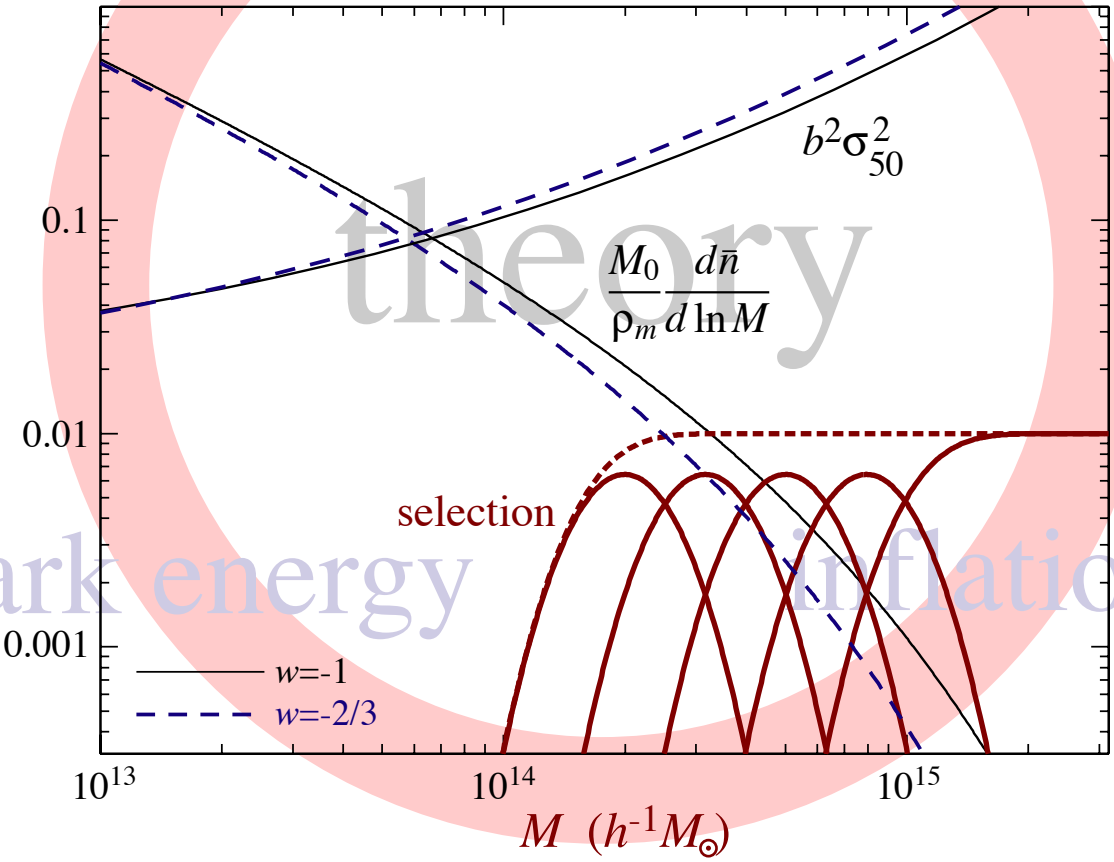
Structures: Dark Energy

- Self-calibration of cluster counts [Lima & Hu 2005]



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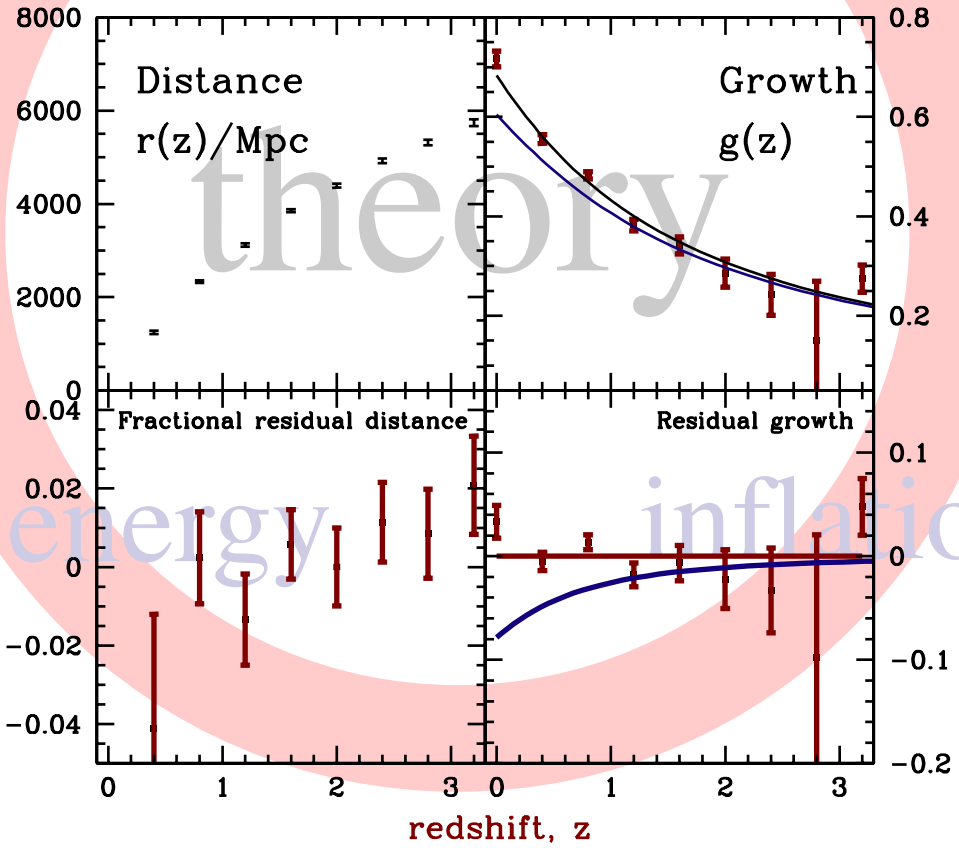
Structures: Dark Energy

- Measuring both distances and growth tests modified gravity models [Song 2004; Knox, Song, & Tyson 2005]



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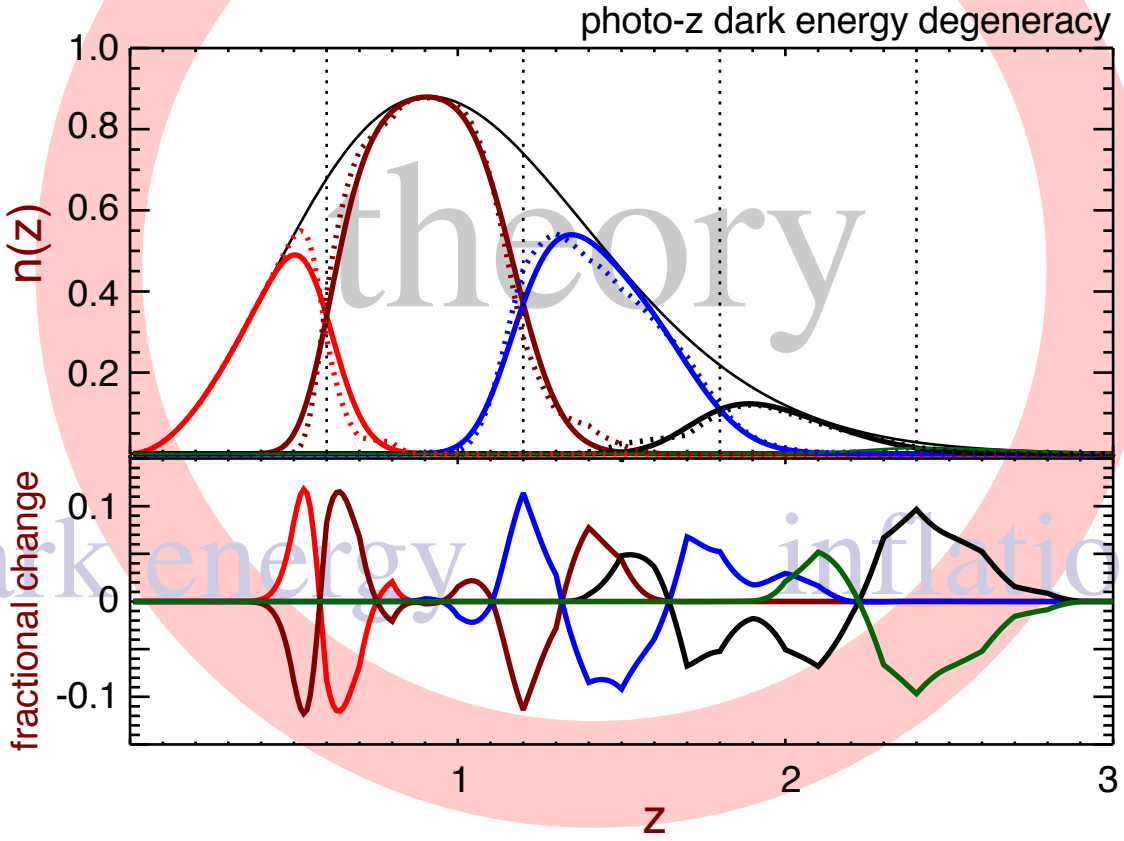
Structures: Dark Energy

- Toward realistic forecasts for cosmic shear

[Huterer & Takada 2004; Huterer & White 2005; Ma, Hu & Huterer 2005]



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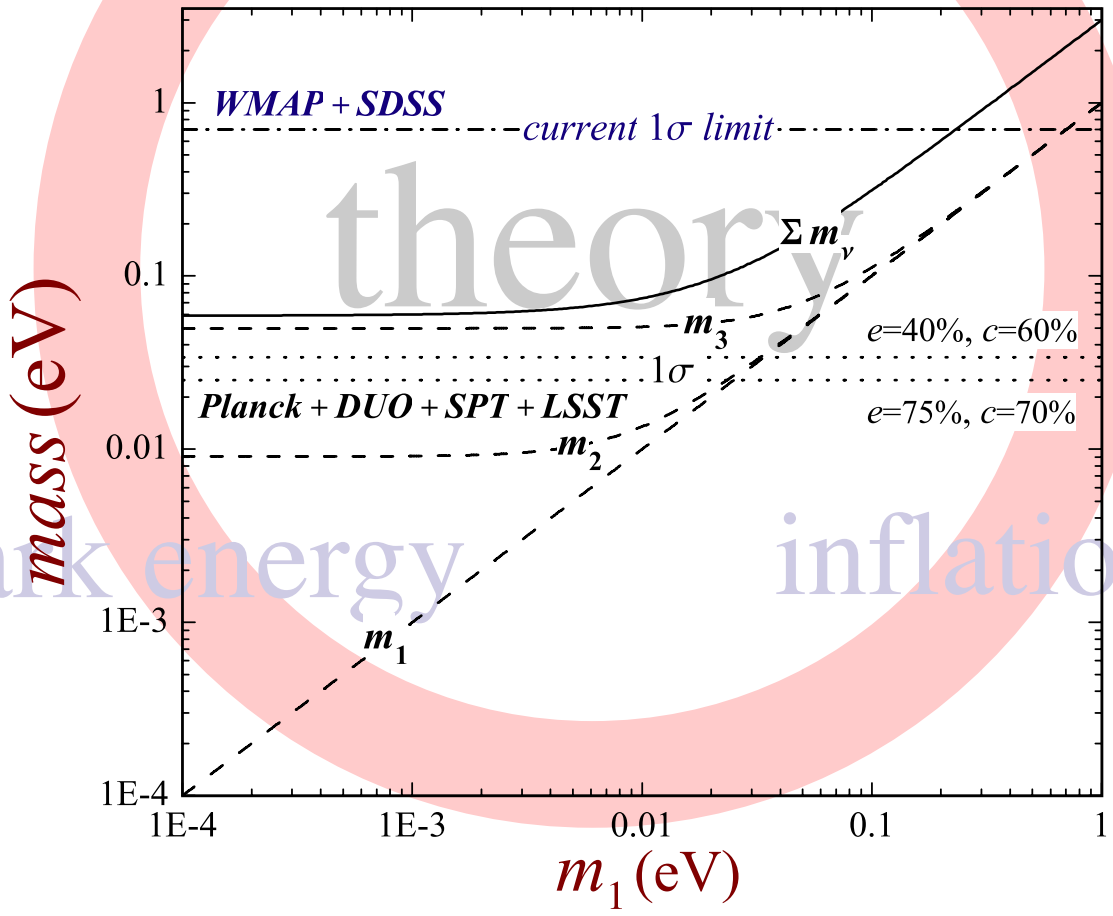
Structures: Neutrinos

- Toward cosmological detection of neutrino mass with clusters [Wang et al 05]



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