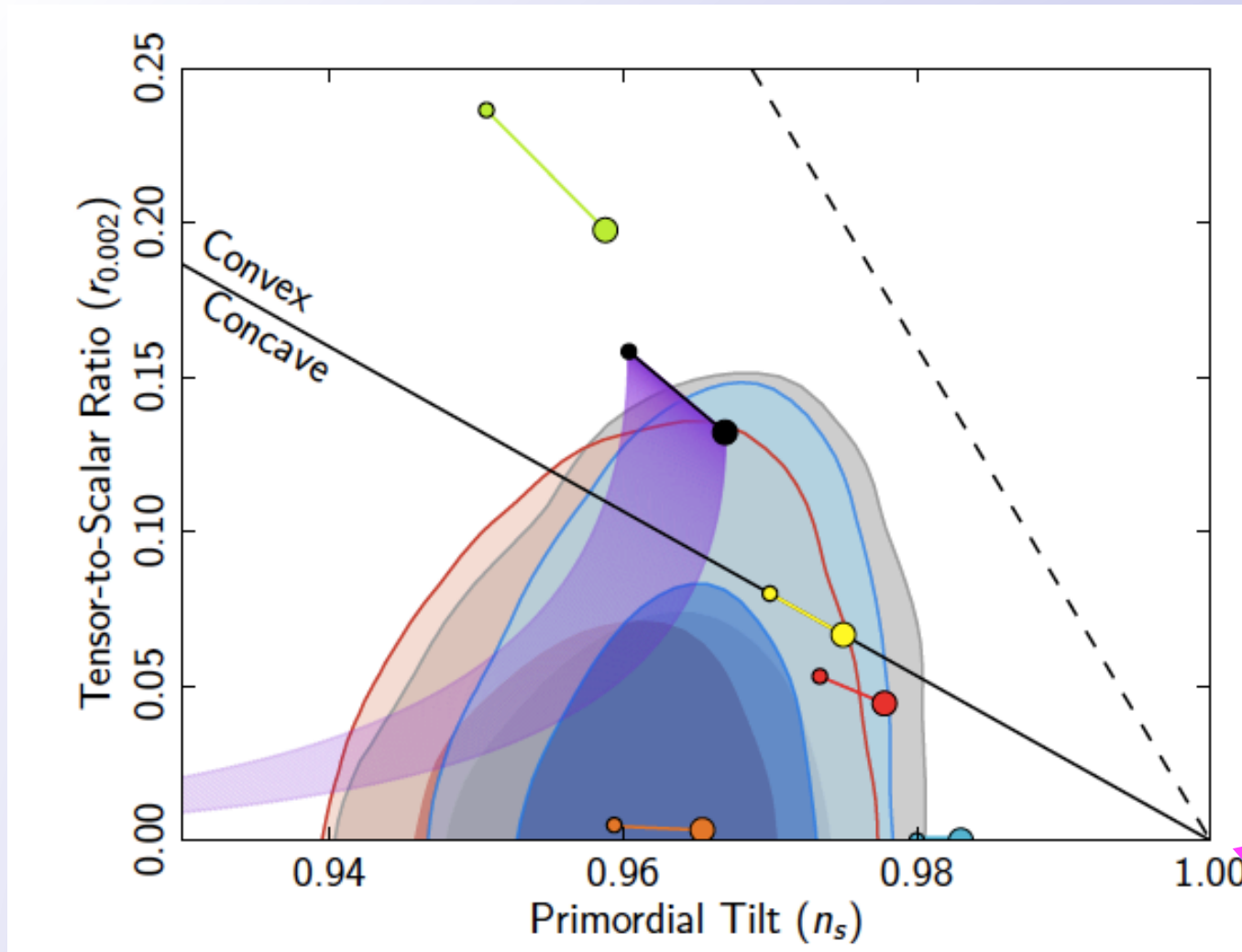


Deviation from scale invariance at $> 5\sigma$!!



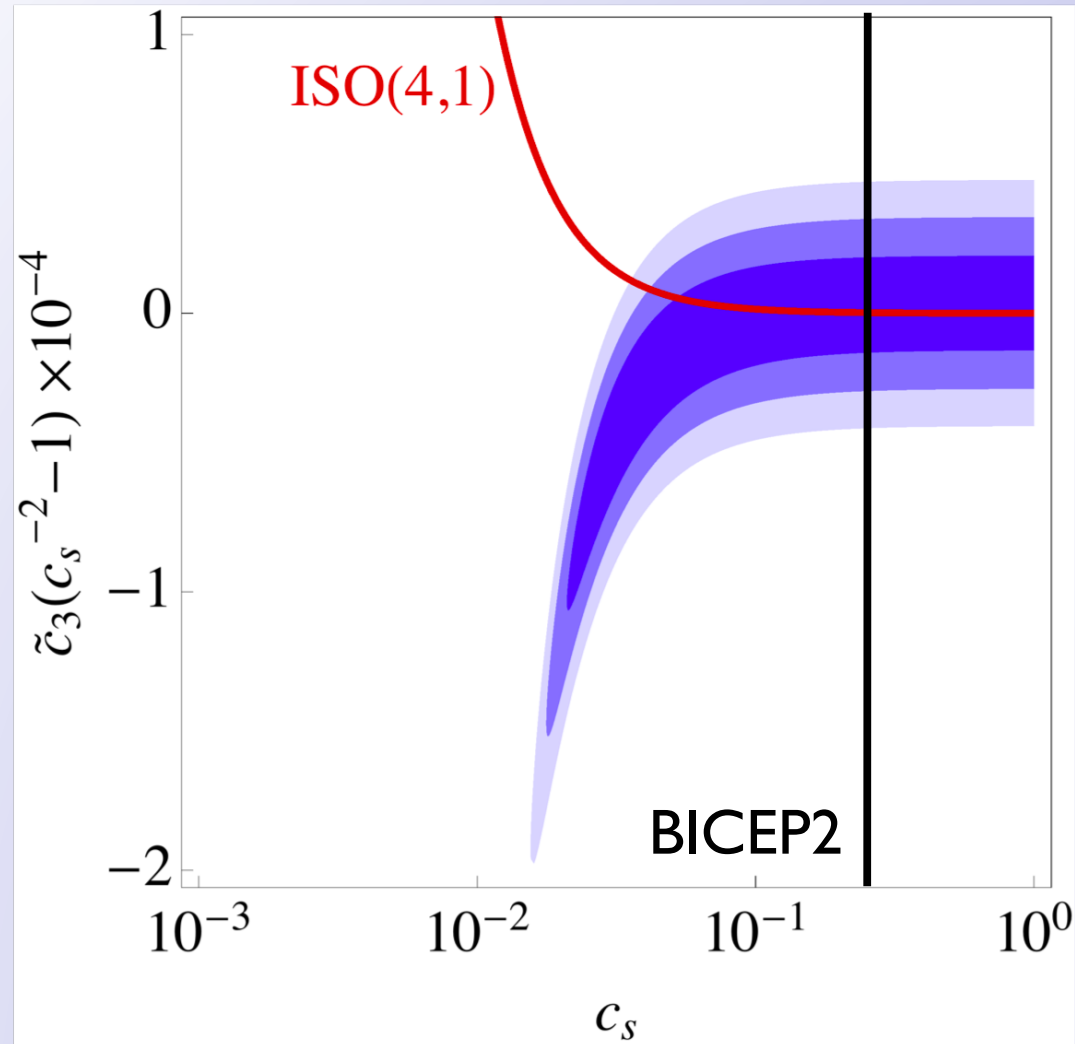
$$\delta\phi = 0$$

$$\langle \zeta_{\vec{k}} \zeta_{\vec{k}'} \rangle = (2\pi)^3 \delta(\vec{k} + \vec{k}') \frac{A}{k^3} \cdot k^{n_s - 1}$$

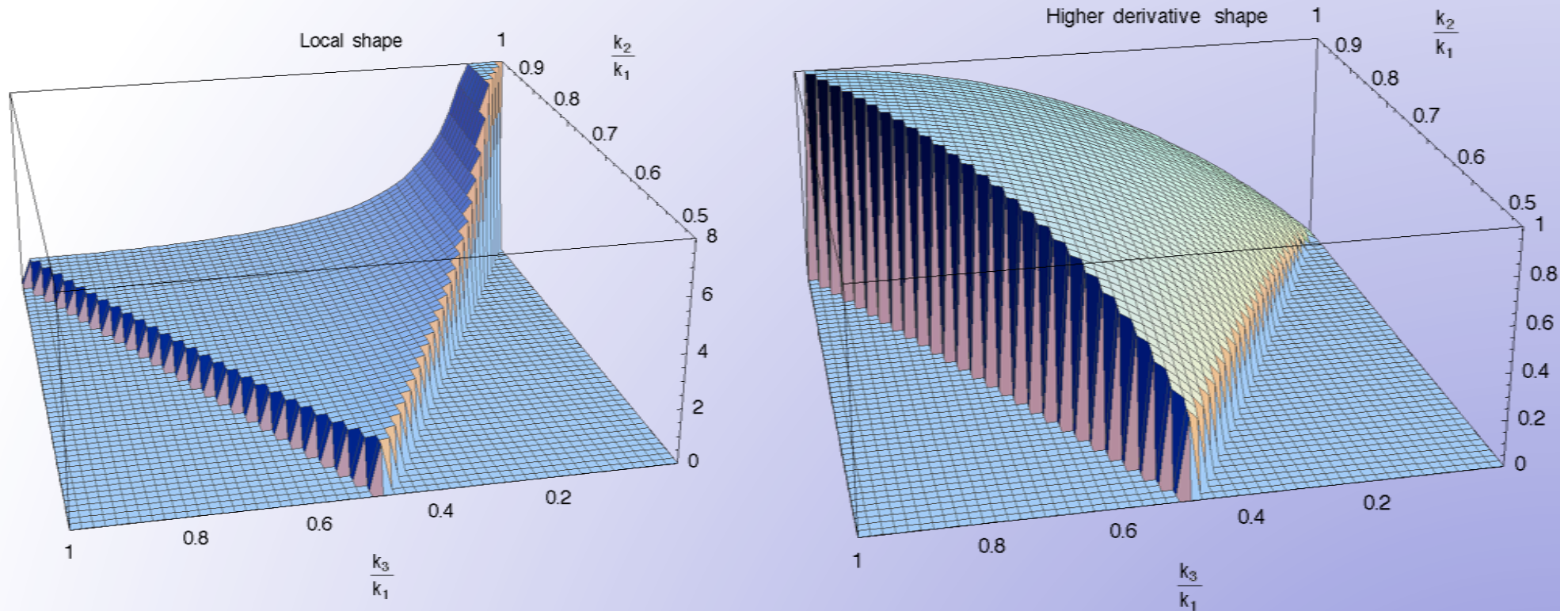
$$h_{ij} = a^2(t) [e^{2\zeta} \delta_{ij} + \gamma_{ij}]$$

Planck limits

Planck 2013 paper Constraints on Primordial Non-Gaussianity

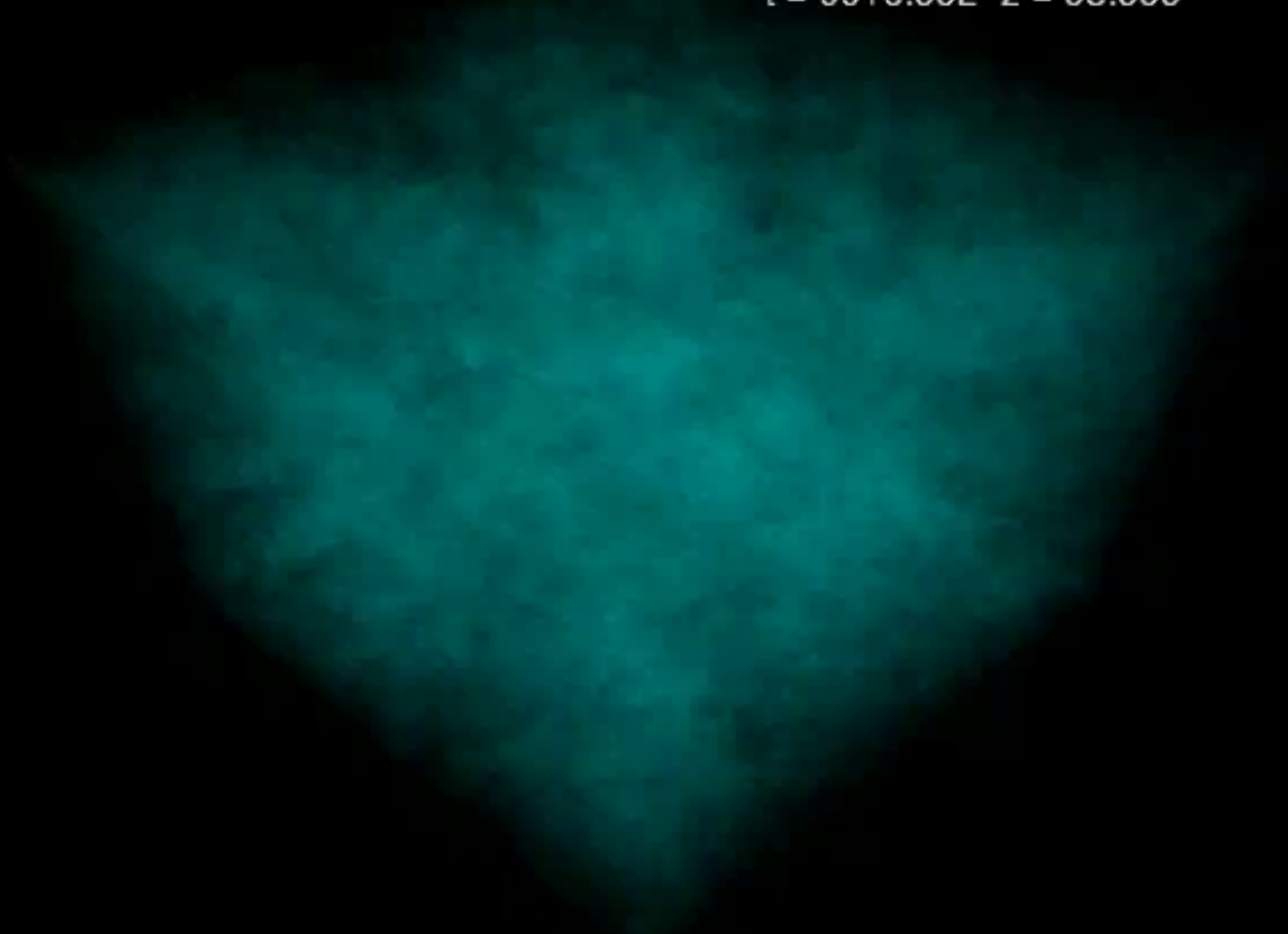


Local shape

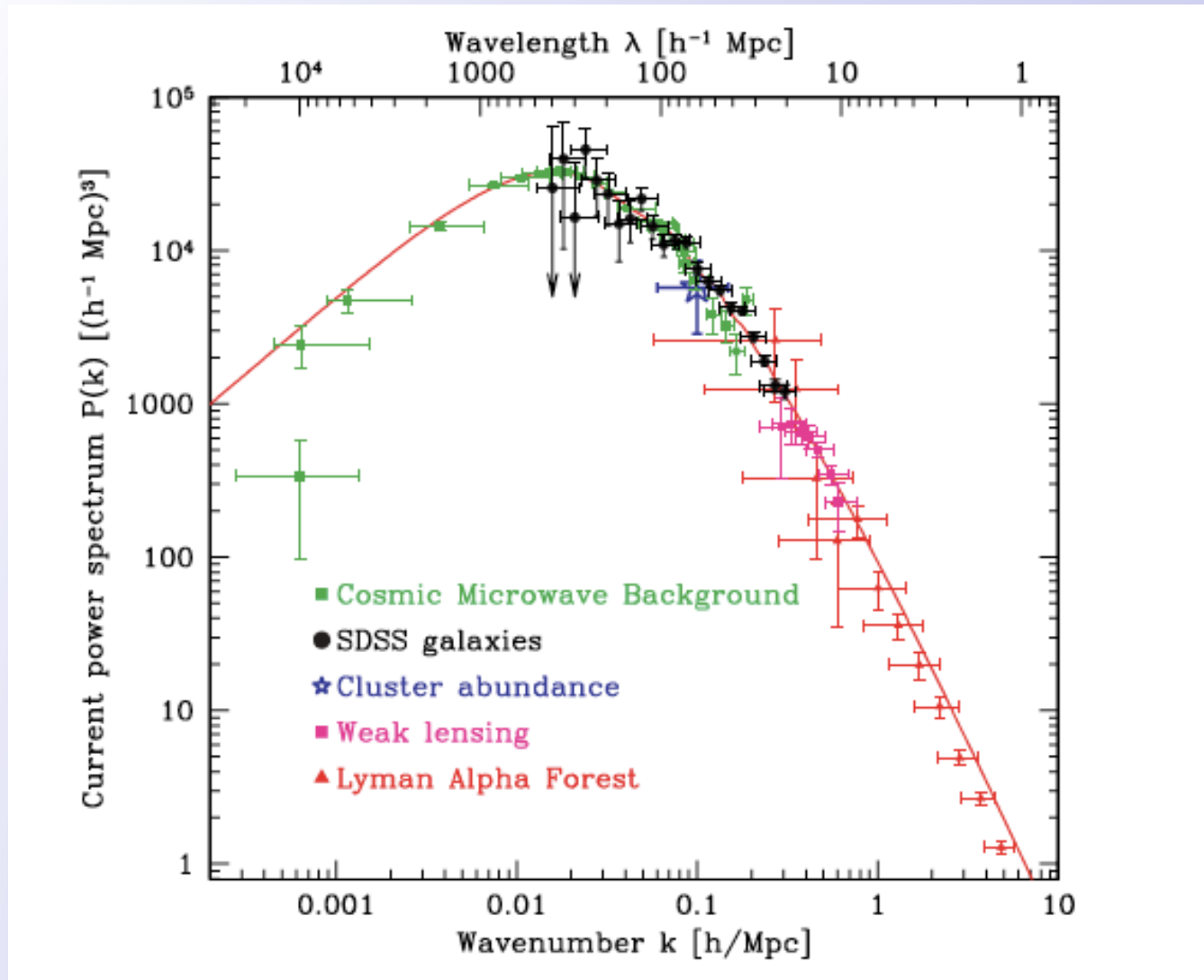


	Independent KSW	ISW-lensing subtracted KSW
SMICA		
Local	9.8 ± 5.8	27 ± 5.8
Equilateral	-37 ± 75	-42 ± 75
Orthogonal	-46 ± 39	-25 ± 39

t = 0016.992 z = 98.999

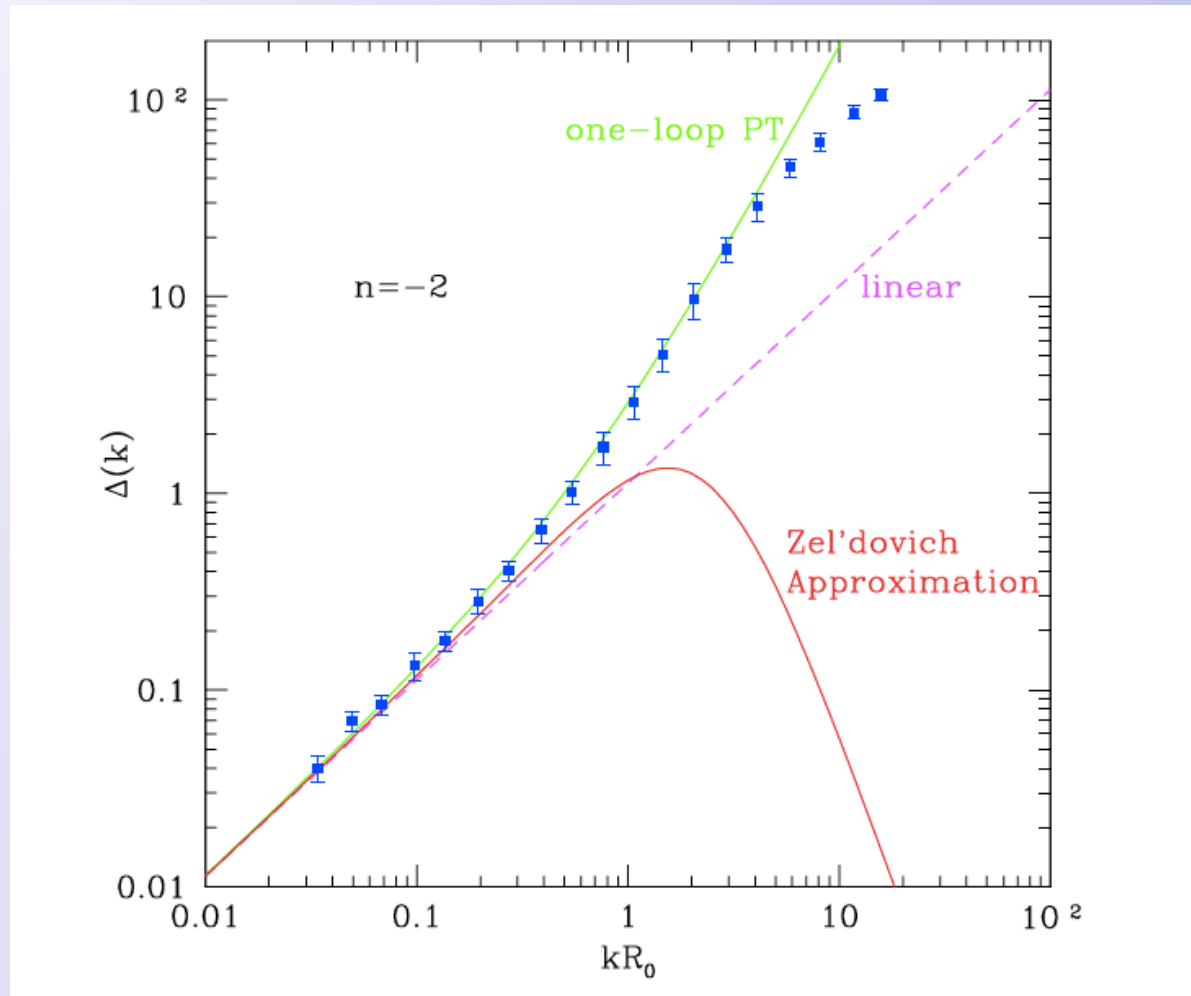


Linear matter power spectrum

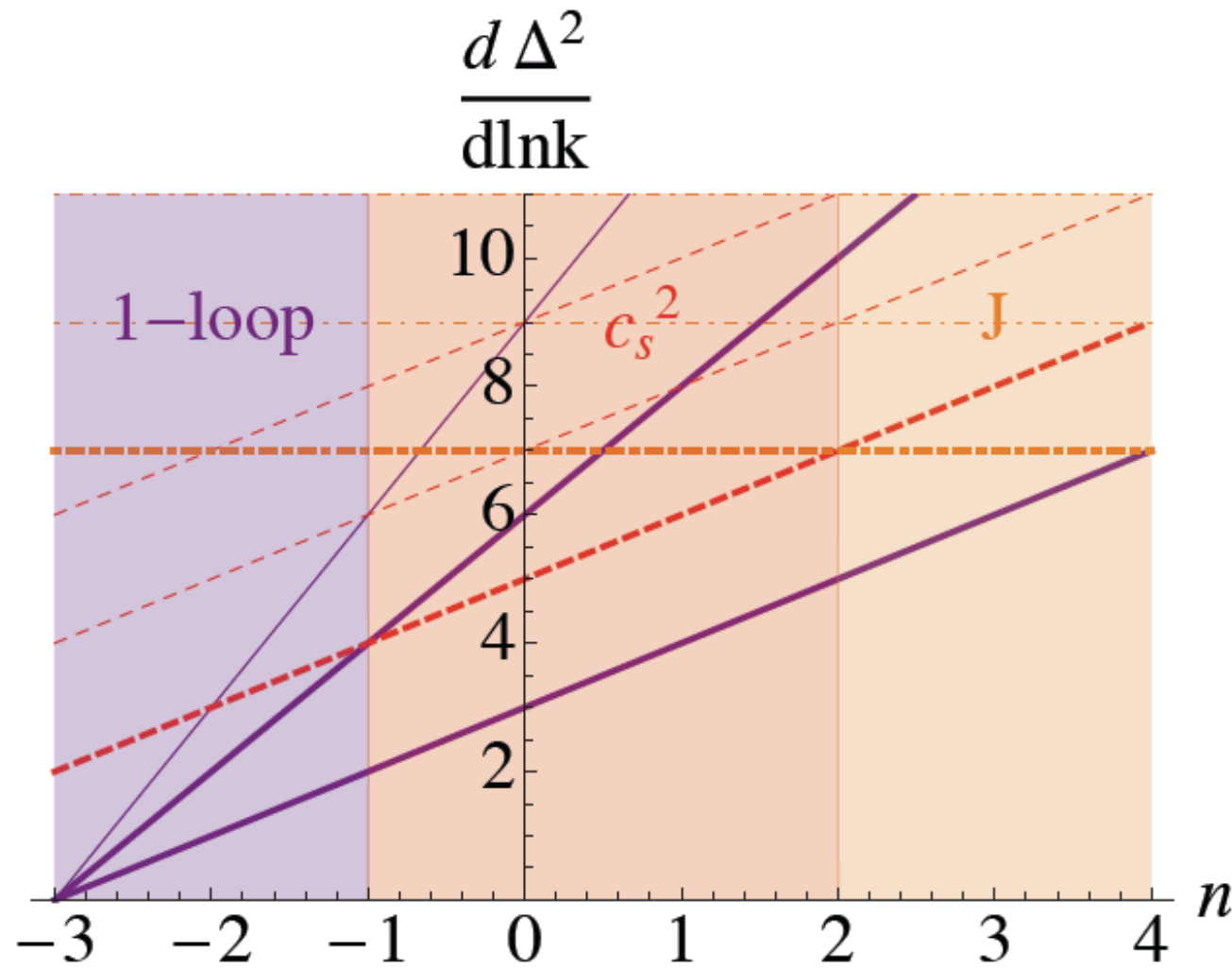


One-loop matter power spectrum

$$F_2(\mathbf{q}_1, \mathbf{q}_2) = \frac{5}{7} + \frac{1}{2} \frac{\mathbf{q}_1 \cdot \mathbf{q}_2}{q_1 q_2} \left(\frac{q_1}{q_2} + \frac{q_2}{q_1} \right) + \frac{2}{7} \frac{(\mathbf{q}_1 \cdot \mathbf{q}_2)^2}{q_1^2 q_2^2}$$



Power spectrum: various contributions



Power spectrum: 2 loops for real universe

