Clustering Tomography: Measuring distances through angular correlation functions of thin redshift slices

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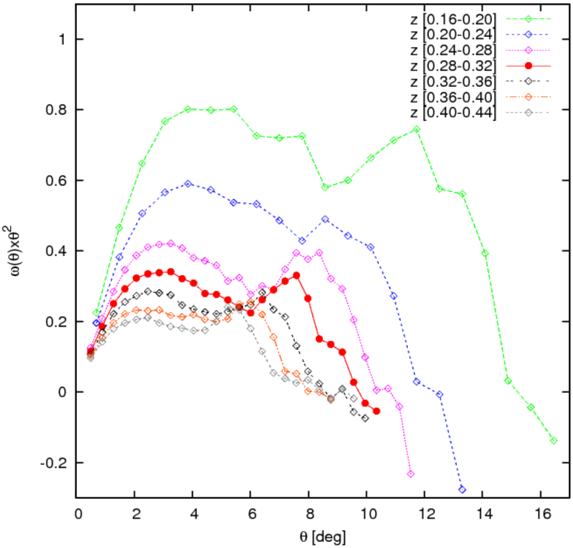
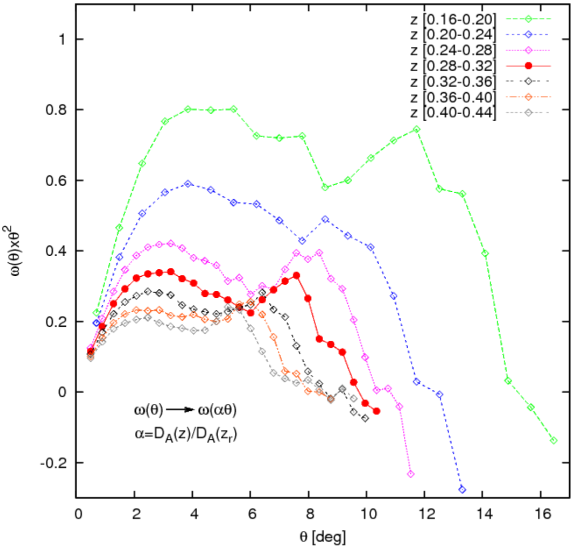
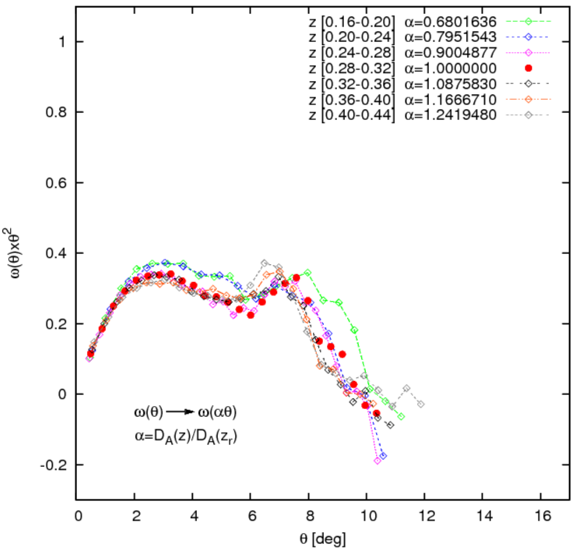

z [0.16-0.20]
z [0.20-0.24]
z [0.24-0.28]
z [0.28-0.32]
z [0.32-0.36]
z [0.36-0.40]
z [0.40-0.44]
ω(θ)xθ²
θ [deg]
1
0.8
0.6
0.4
0.2
0
-0.2
0
2
4
6
8
10
12
14
16

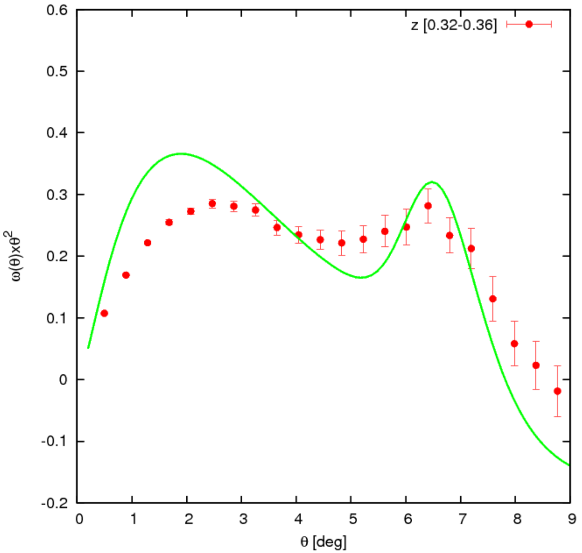


z [0.16-0.20]
z [0.20-0.24]
z [0.24-0.28]
z [0.28-0.32]
z [0.32-0.36]
z [0.36-0.40]
z [0.40-0.44]
ω(θ)xθ²
θ [deg]
ω(θ) → ω(αθ)
α=D_A(z)/D_A(z_r)


z [0.16-0.20] α=0.6801636
z [0.20-0.24] α=0.7951543
z [0.24-0.28] α=0.9004877
z [0.28-0.32] α=1.0000000
z [0.32-0.36] α=1.0875830
z [0.36-0.40] α=1.1666710
z [0.40-0.44] α=1.2419480
ω(θ)xθ²
θ [deg]
ω(θ) ⟶ ω(αθ)
α=D_A(z)/D_A(z_r)

$$\omega(\theta) = \int_{z_i}^{z_f} dz_1 \phi(z_1) \int_{z_i}^{z_f} dz_2 \phi(z_2) \xi(z_1, z_2, \theta)$$

$$\phi(z) = \frac{n(z)\frac{dV(z)}{dz}}{\int_{z_i}^{z_f} dz\, n(z)\frac{dV(z)}{dz}}$$



z [0.32-0.36]
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
ω(θ)xθ2
0
1
2
3
4
5
6
7
8
9
θ [deg]

$$\omega(\theta) = \int_{z_i}^{z_f} dz_1 \phi(z_1) \int_{z_i}^{z_f} dz_2 \phi(z_2) \xi(z_1, z_2, \theta)$$

$$\omega(\theta) = \int_{z_i}^{z_f} dz_1 \phi(z_1) \int_{z_i}^{z_f} dz_2 \phi(z_2) \xi(z_1, z_2, \theta)$$

$$\xi(s, \mu) = P_0(\mu)\xi_0(s) + P_2(\mu)\xi_2(s) + P_4(\mu)\xi_4(s)$$

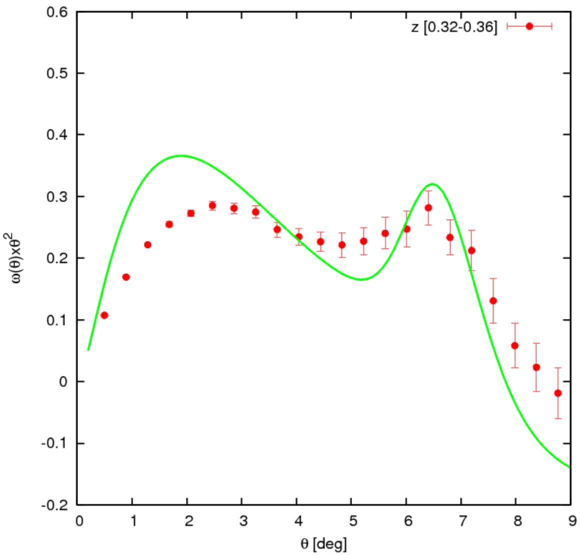
$$\omega(\theta) = \int_{z_i}^{z_f} dz_1 \phi(z_1) \int_{z_i}^{z_f} dz_2 \phi(z_2) \xi(z_1, z_2, \theta)$$

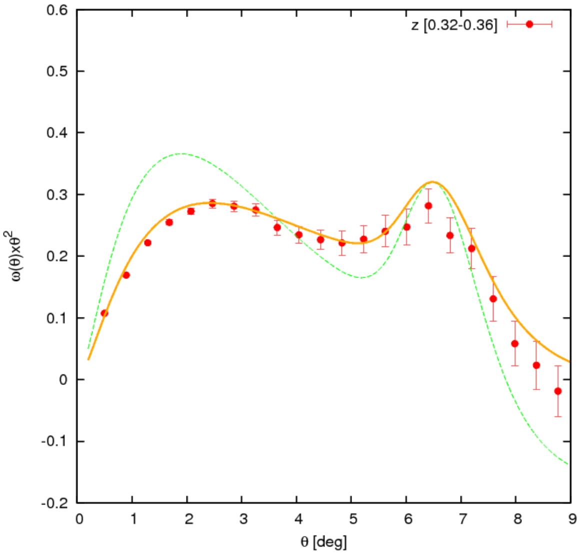
$$\xi(s, \mu) = P_0(\mu)\xi_0(s) + P_2(\mu)\xi_2(s) + P_4(\mu)\xi_4(s)$$

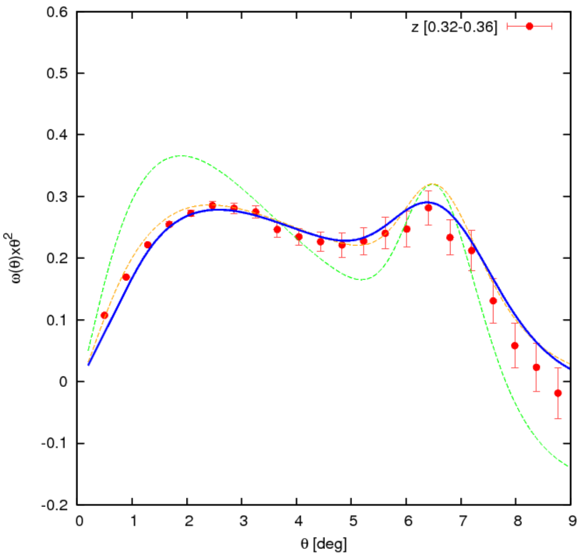
$$\xi_0(s) = b^2 \left(1 + \frac{2\beta}{3} + \frac{\beta^2}{5}\right) \xi(s)$$

$$\xi_2(s) = b^2 \left(\frac{4\beta}{3} + \frac{4\beta^2}{7}\right) \{\xi(s) - \bar{\xi}(s)\}$$

$$\bar{\xi}(s) = \frac{3}{s^3} \int_0^s dr \xi(r) r^2 \qquad \beta = \frac{f}{b} \qquad f = \frac{\partial \ln D}{\partial \ln a}$$


z [0.32-0.36]
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
ω(θ)xθ^2
0
1
2
3
4
5
6
7
8
9
θ [deg]


z [0.32-0.36]
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
ω(θ)xθ²
0
1
2
3
4
5
6
7
8
9
θ [deg]



z [0.32-0.36]
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
ω(θ)xθ²
0 1 2 3 4 5 6 7 8 9
θ [deg]