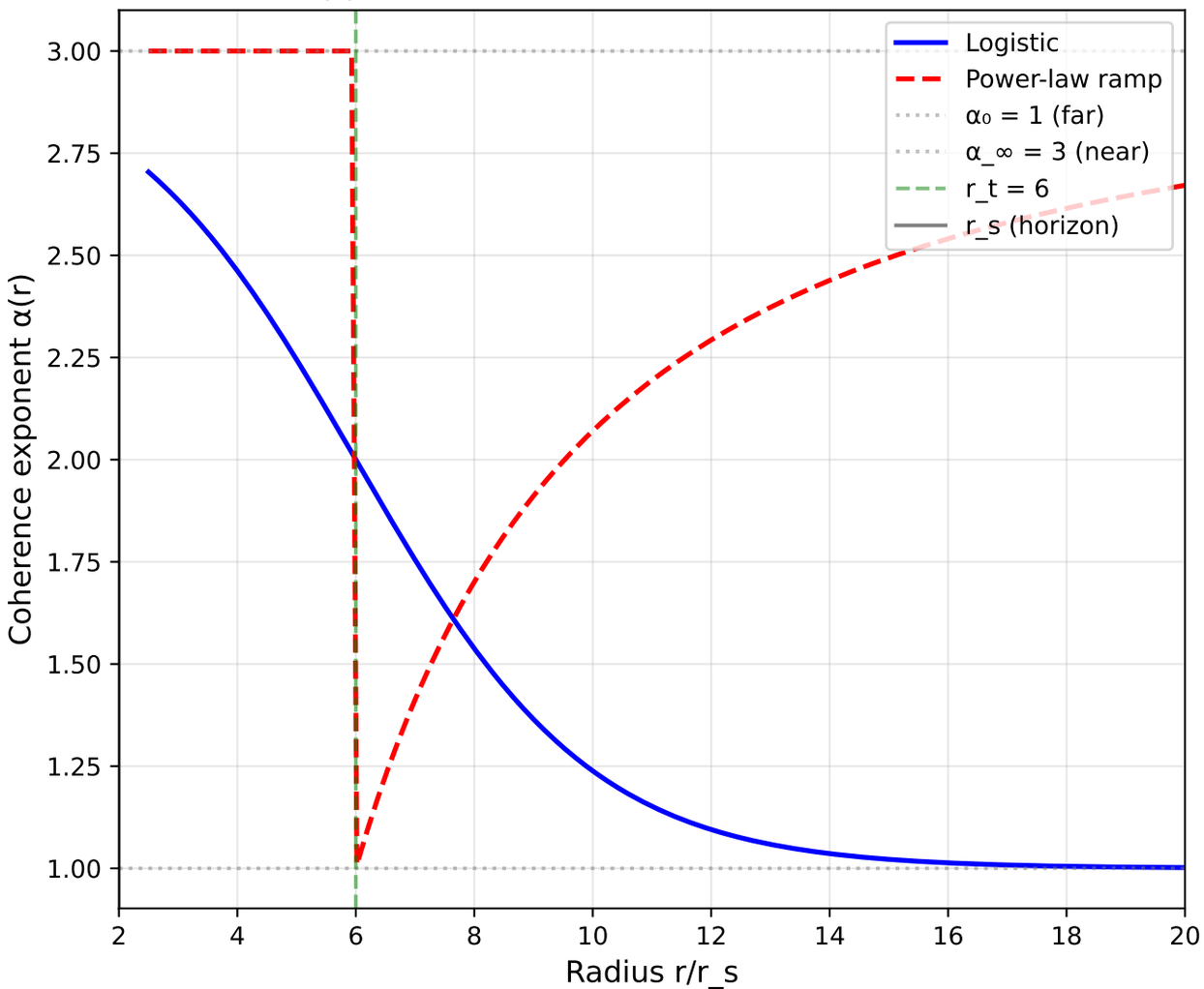
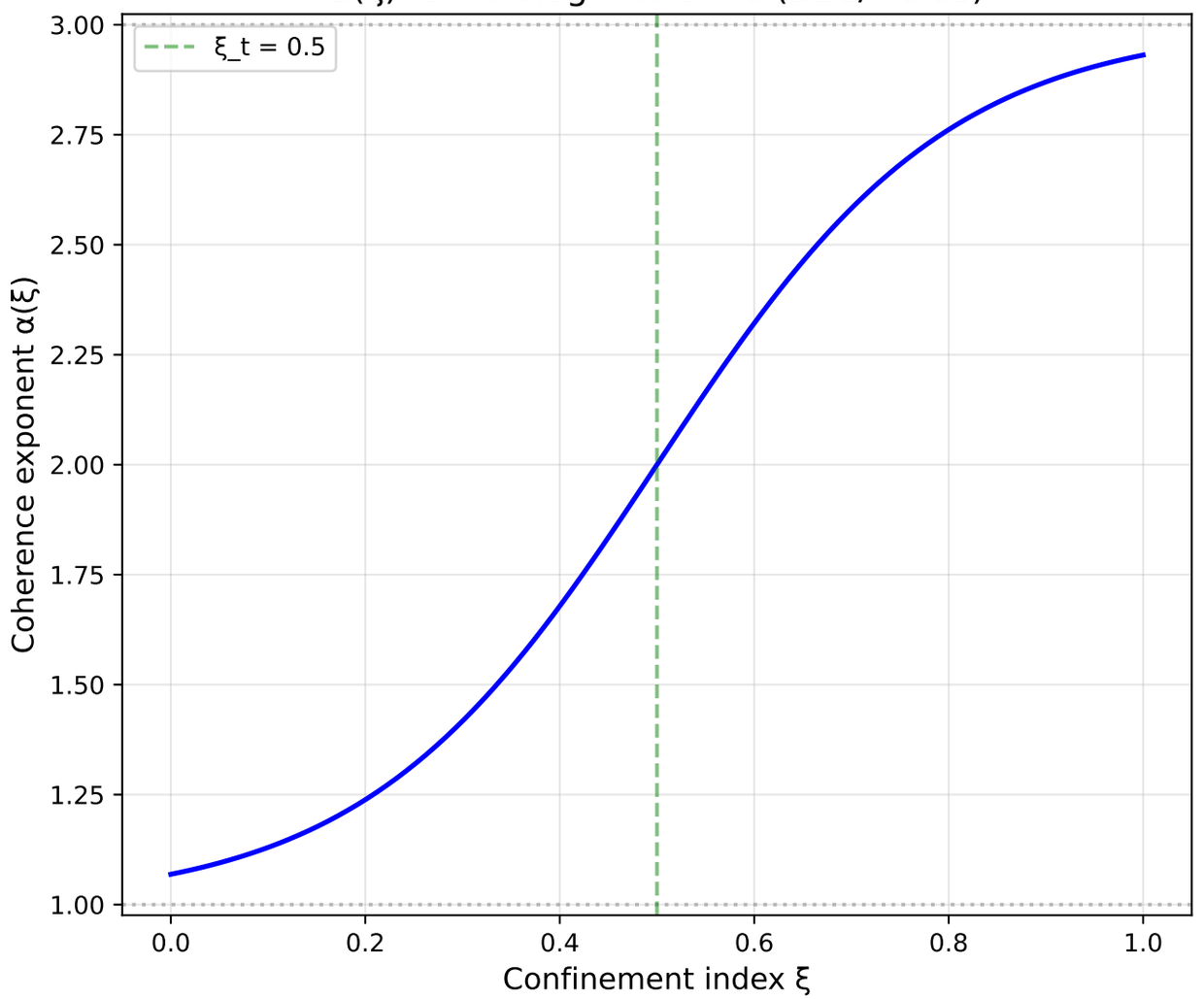
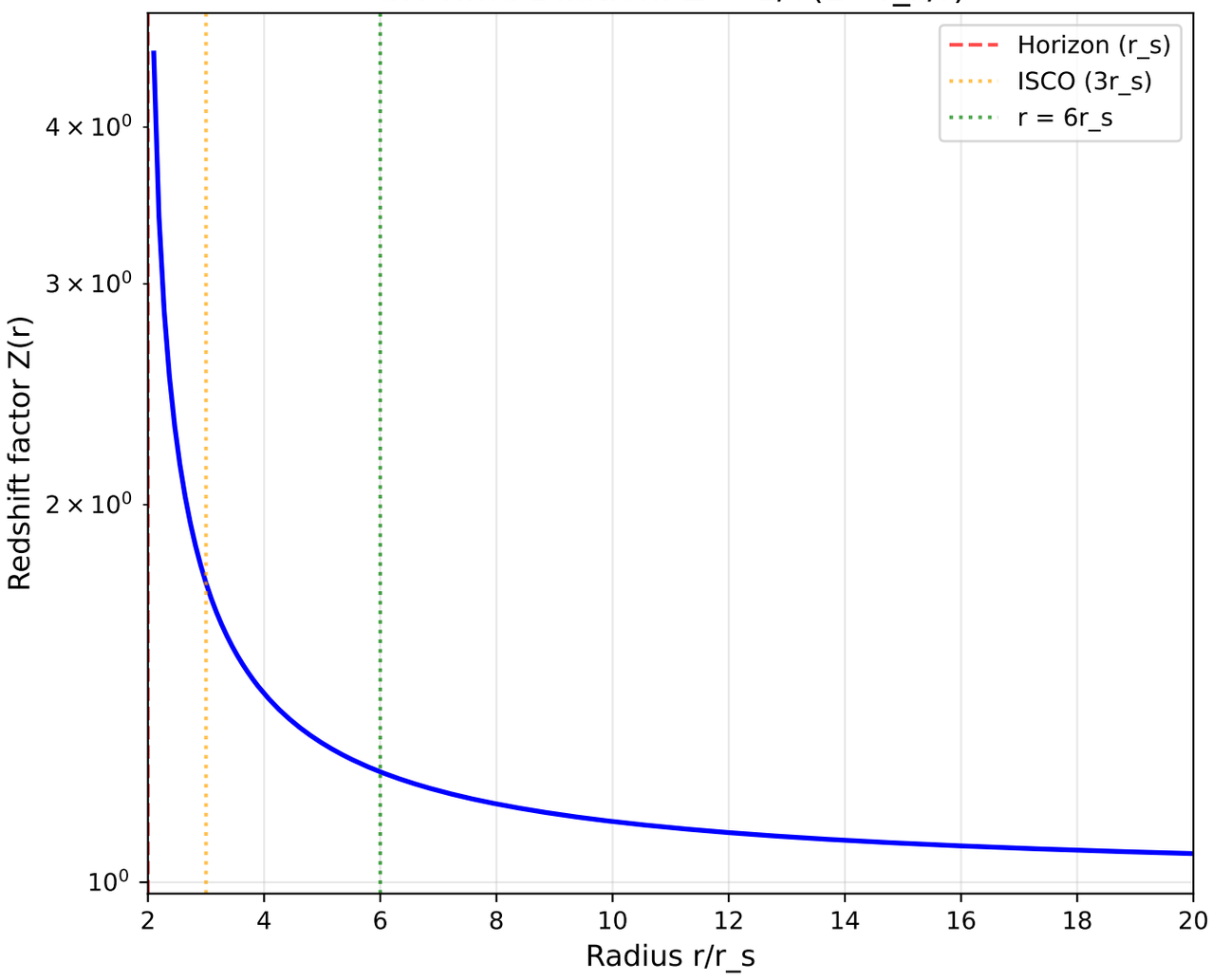
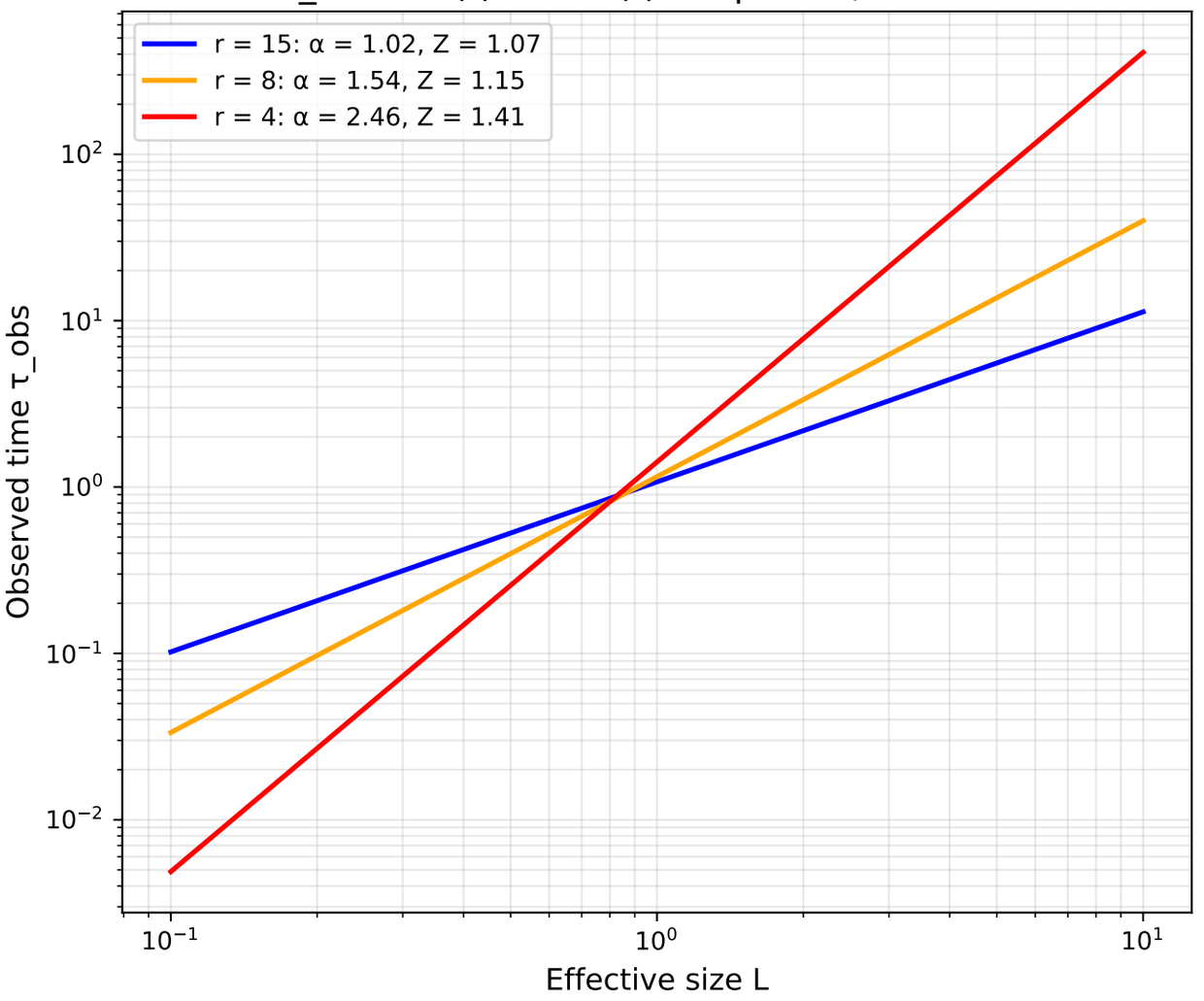

α(r) Profiles: Coherence Increases Inward
Logistic
Power-law ramp
α₀ = 1 (far)
α_∞ = 3 (near)
r_t = 6
r_s (horizon)
Coherence exponent α(r)
Radius r/r_s


α(ξ) for Analog Platforms (BEC/Fluids)
ξ_t = 0.5
Coherence exponent α(ξ)
Confinement index ξ


GR Time Dilation: Z = 1/√(1 - r_s/r)
Horizon (r_s)
ISCO (3r_s)
r = 6r_s
Redshift factor Z(r)
Radius r/r_s


τ_obs = Z(r) × L^α(r): Slope = α, Level ∝ Z
r = 15: α = 1.02, Z = 1.07
r = 8: α = 1.54, Z = 1.15
r = 4: α = 2.46, Z = 1.41
Observed time τ_obs
Effective size L