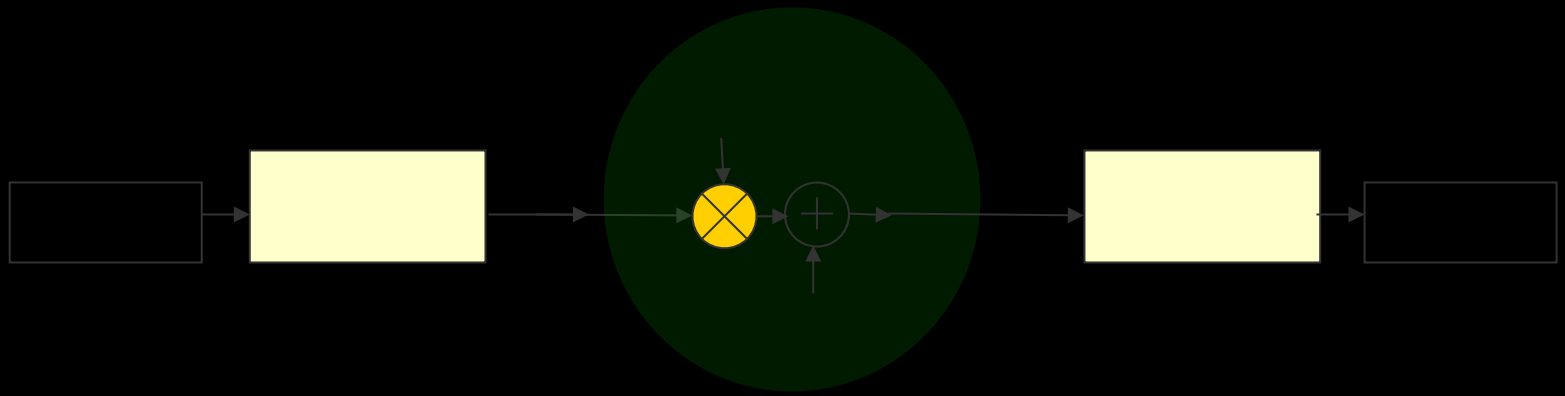
Information Rates for Phase Noise Channels (including fiber optic channels)

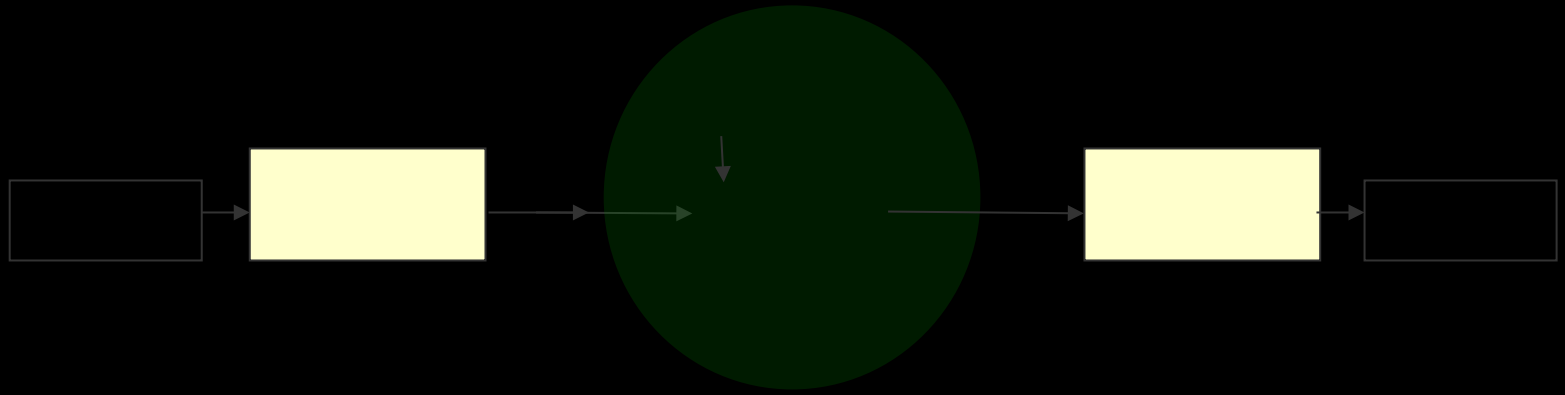
Unterstützt von / Supported by

Alexander von Humboldt Stiftung/Foundation

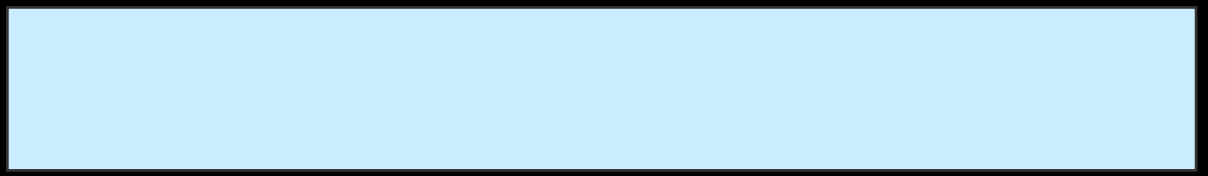
Claude Elwood Shannon

1) Phase Noise Models

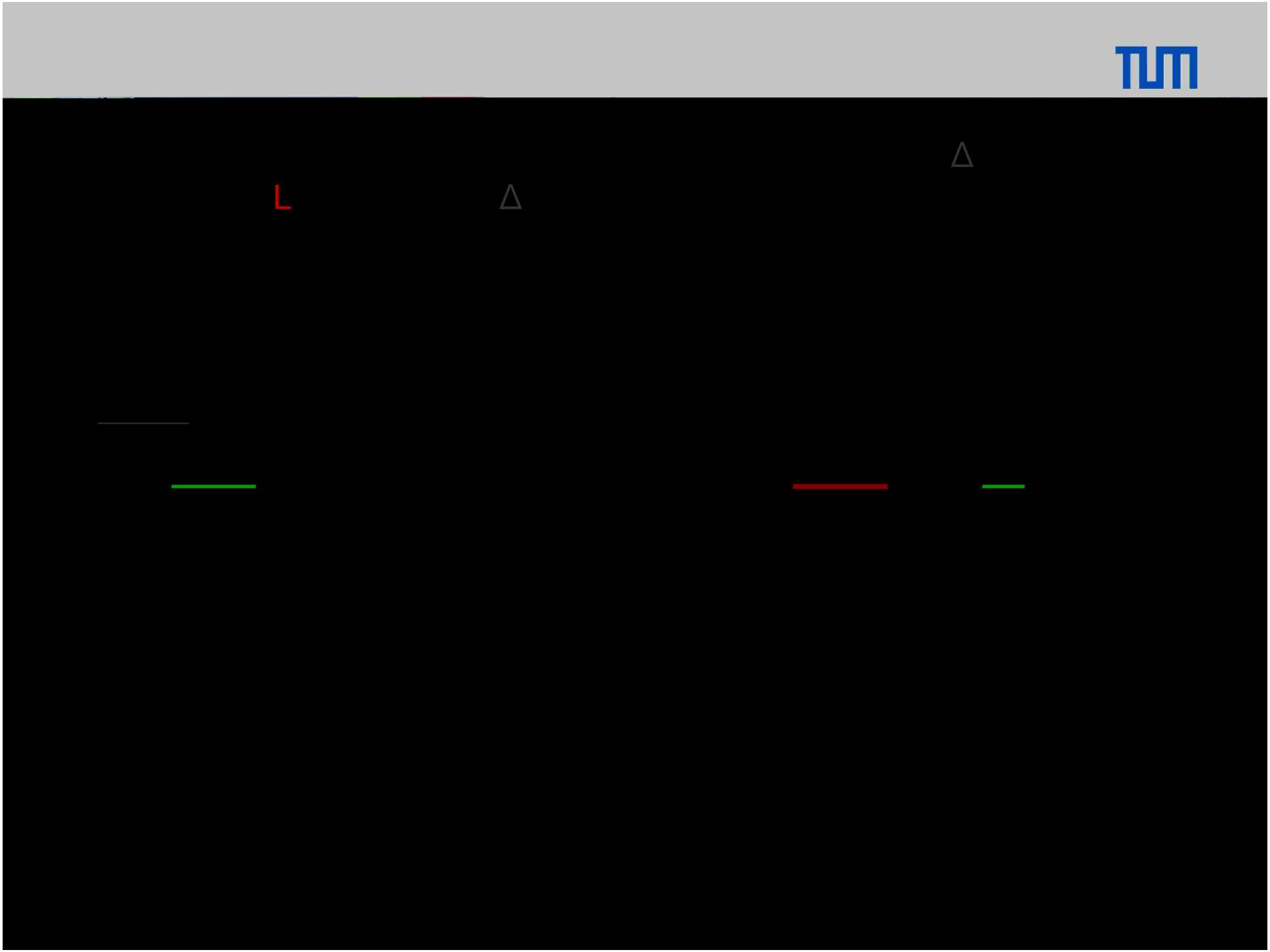


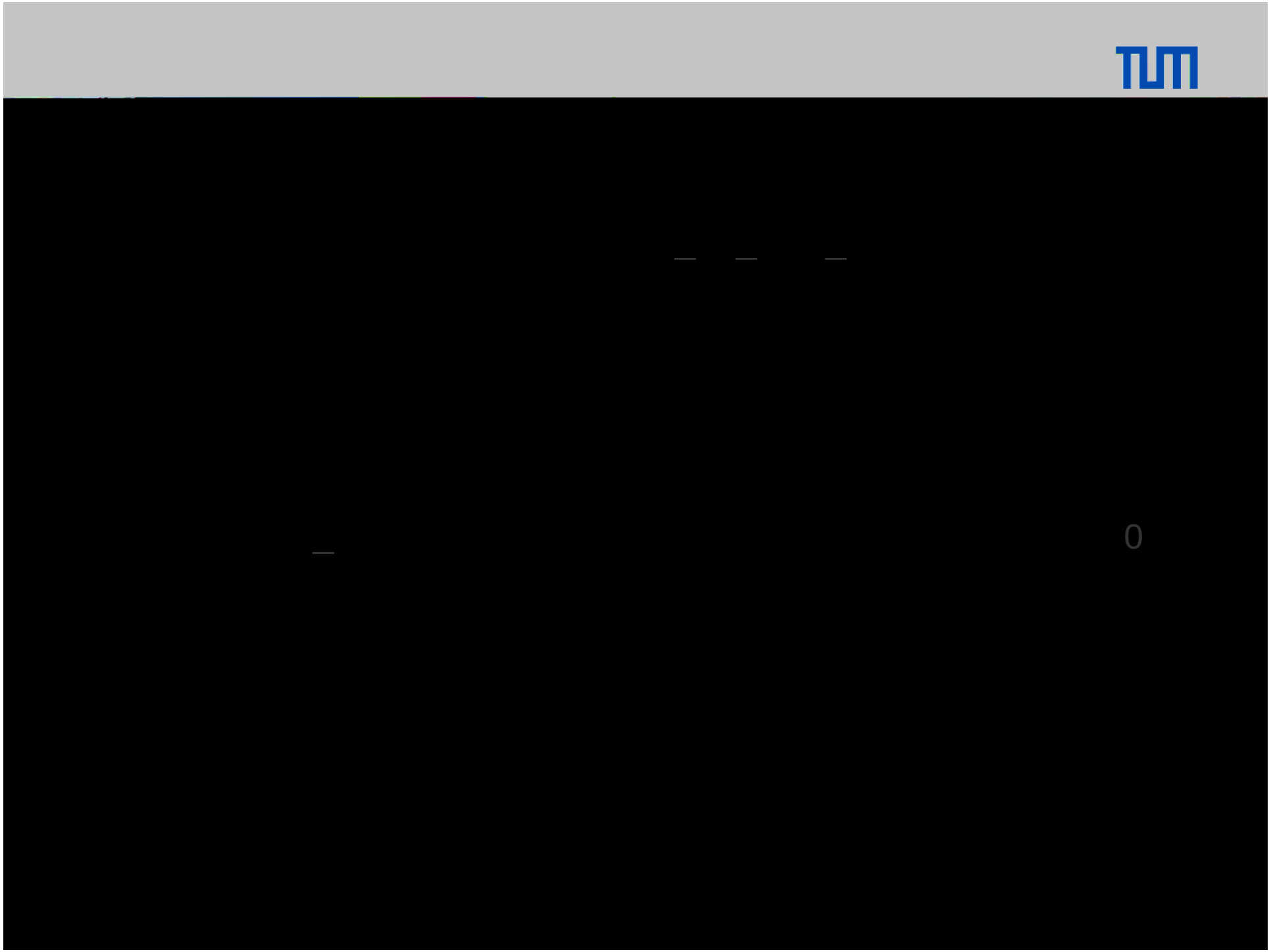


SMF Pulse Propagation Equation



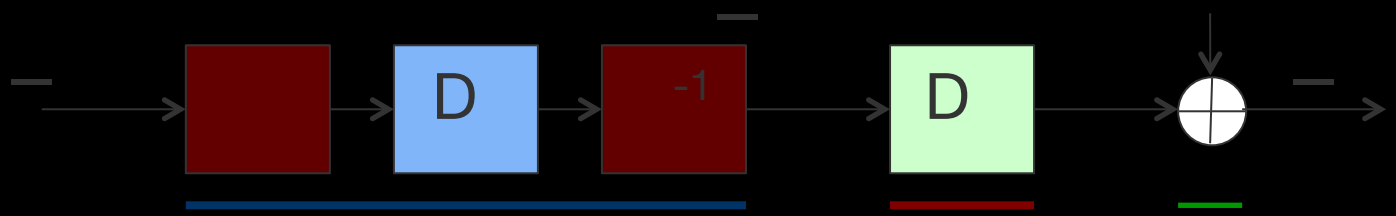
E : Electromagnetic field, function of z and T
z: Distance
T : Retarded time t-$\beta_1 z$
α : Fiber loss coefficient (~ 3 dB/15 km)
β_1 : Inverse of group velocity
β_2 : Fiber group velocity dispersion
β_3 : Fiber dispersion slope (include if β_2 small)
γ : Fiber nonlinear parameter (n_2)/(c A_{eff})


L
Δ
Δ



Main Observations

D
-1
D


D
-1
D

$$! \log 1 + SNR \quad [\text{bits/sec/Hz}]$$