Theoretical SNR Peak vs. Noise Injection Topology (α) Noise Model Topology $\alpha = 1.0$ (Loop Noise Only) 0.6 $\alpha = 0.5$ (Hybrid Noise) $\alpha = 0.1$ (Hybrid Noise) $\alpha = 0.0$ (Output Noise Only) Modeled Output SNR (normalized) 0.5 0.1 0.0 -0.25 0.50 0.00 0.75 1.00 1.25 1.50 1.75 2.00 Thermal Strength (T) (dimensionless)