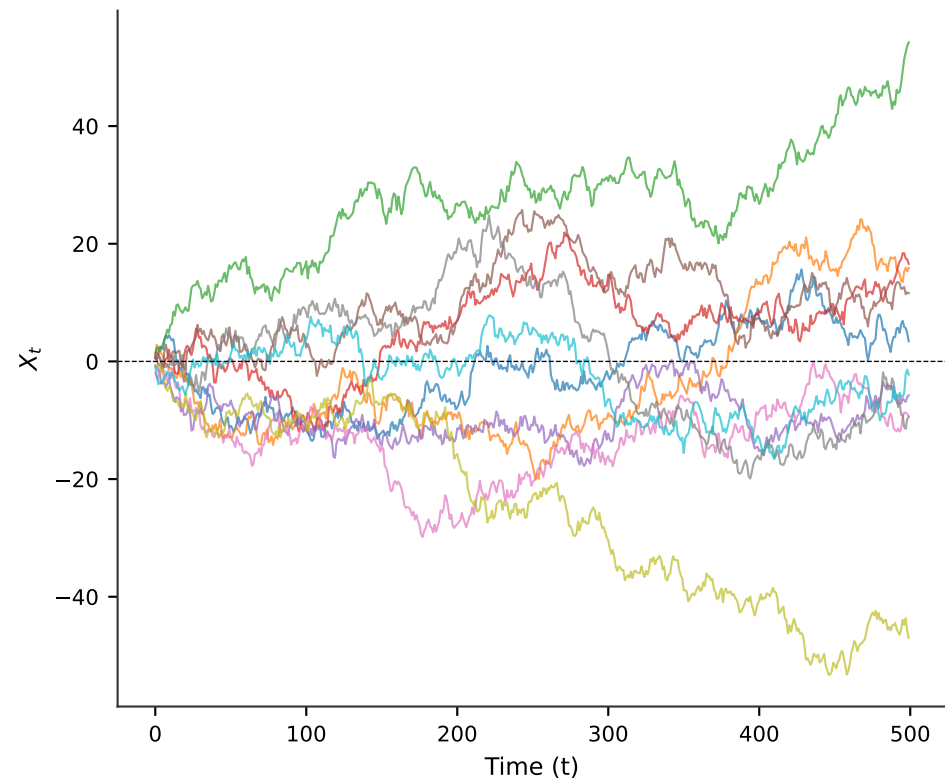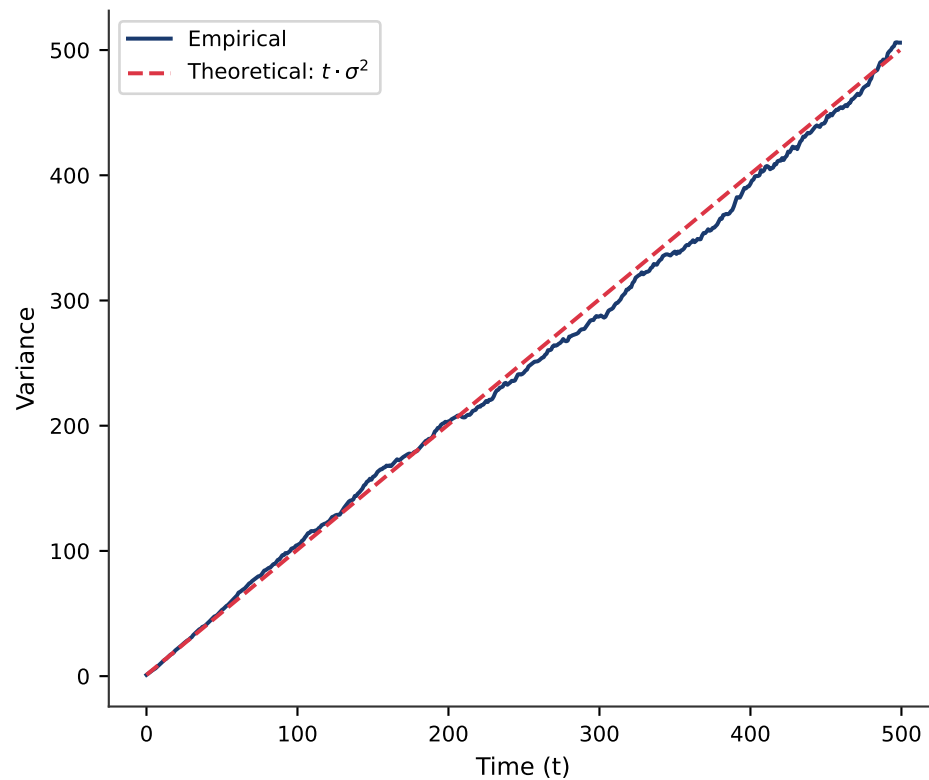**10 Random Walk Realizations** — **Variance Growth:** $Var(X_t) = t\sigma^2$ — **ACF of Random Walk (slow decay)**

Left panel: X_t vs Time (t)

Center panel: Variance vs Time (t)
- Empirical
- Theoretical: $t \cdot \sigma^2$

Right panel: ACF vs Lag