Physics-Inspired Black-Scholes Greeks

Treat the option price as an **observable** and each Greek as the response to a small perturbation of one parameter (S, σ, T, r), computed via central finite differences.

Spot Price (S)

100.00 − +

Risk-Free Rate (r)

0.0500 − +

Strike Price (K)

102.00 − +

Volatility (σ)

0.200 − +

Time to Maturity (T, years)

1.00 − +

Dividend Yield (q)

0.005 − +

Option Type

Call

Results

Option Price: 9.126982

Greeks

Delta: 0.586455

Theta: 6.052144

Gamma: 0.019347

Rho: 49.518414

Vega: 38.694458

All Greeks are computed as central finite-difference derivatives of the price, analogous to numerical response functions in physics simulations.