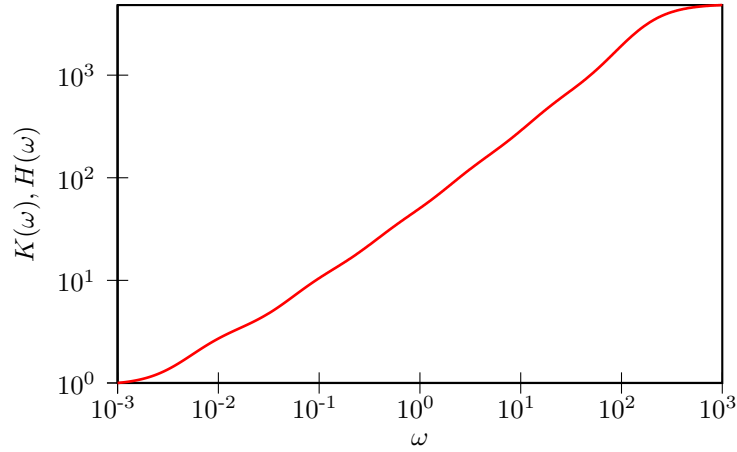


# GENERALIZED LANGEVIN EQUATION ANALYTICS

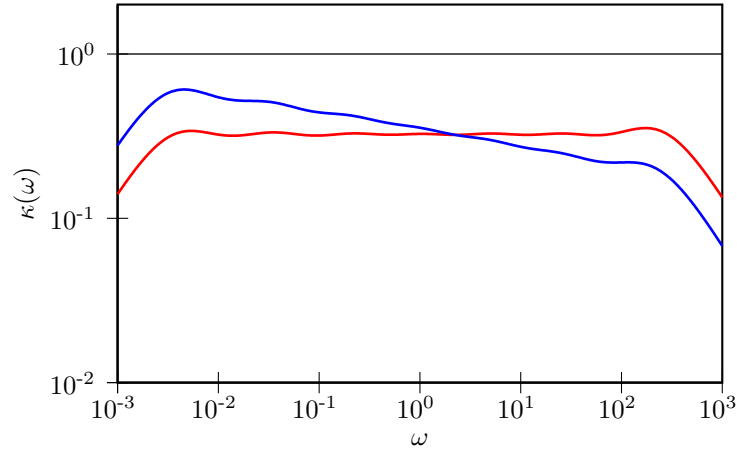
- Drift matrix  $A_p$ :

$$\begin{pmatrix} 6.9892 \times 10^{+01} & 2.7240 \times 10^{-02} & 1.1343 \times 10^{-01} & 5.0860 \times 10^{-01} & -2.1371 \times 10^{+00} & -1.1206 \times 10^{+01} & 9.5153 \times 10^{+01} \\ 5.7644 \times 10^{-03} & 7.0266 \times 10^{-03} & 3.0128 \times 10^{-03} & -1.6364 \times 10^{-03} & -5.3542 \times 10^{-03} & 2.6876 \times 10^{-02} & 2.8050 \times 10^{-04} \\ 7.4343 \times 10^{-02} & -3.0128 \times 10^{-03} & 7.2680 \times 10^{-02} & 1.8267 \times 10^{-02} & 2.1290 \times 10^{-02} & 1.2385 \times 10^{-02} & -2.8366 \times 10^{-02} \\ 4.0838 \times 10^{-01} & 1.6364 \times 10^{-03} & -1.8267 \times 10^{-02} & 4.8848 \times 10^{-01} & 4.3418 \times 10^{-03} & -7.5574 \times 10^{-03} & 4.7489 \times 10^{-03} \\ -2.1942 \times 10^{+00} & 5.3542 \times 10^{-03} & -2.1290 \times 10^{-02} & -4.3418 \times 10^{-03} & 2.8681 \times 10^{+00} & -6.8345 \times 10^{-02} & -9.4254 \times 10^{-03} \\ -1.0825 \times 10^{+01} & -2.6876 \times 10^{-02} & -1.2385 \times 10^{-02} & 7.5574 \times 10^{-03} & 6.8345 \times 10^{-02} & 1.7459 \times 10^{+01} & -2.4523 \times 10^{-02} \\ 9.6228 \times 10^{+01} & -2.8050 \times 10^{-04} & 2.8366 \times 10^{-02} & -4.7489 \times 10^{-03} & 9.4254 \times 10^{-03} & 2.4523 \times 10^{-02} & 1.5081 \times 10^{+02} \end{pmatrix}$$

- Fluctuation-Dissipation theorem is enforced,  $C_p = k_B T$
- Memory kernel FT,  $K(\omega)/K(0) = H(\omega)/H(0)$



- Sampling efficiency, for  $q^2$  and  $p^2 + \omega^2 q^2$ :



- Free-particle diffusion coeff. ( $mD/k_B T$ ):  $7.3830 \times 10^{+01}$