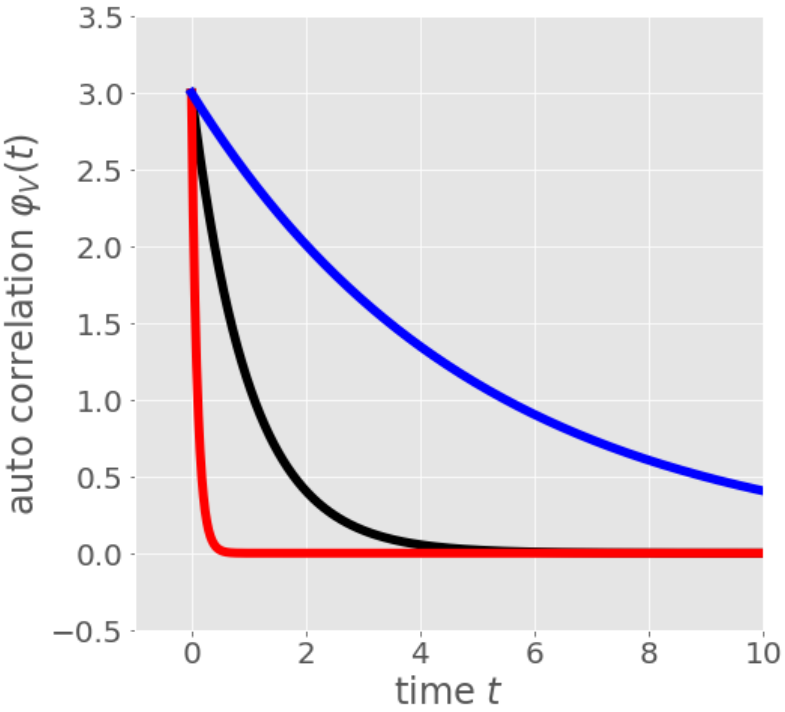
Problem (1-2)

Problem 1

0.0/1.0 point (graded)

In the following figure, the black line shows the velocity auto-correlation function $\varphi_V\ (t)$ for Brownian particles with the following set of parameters: $\{m = 1, \zeta = 1, k_B T = 1\}$. Choose the correct set of parameter values for the velocity auto-correlation functions colored in Red and Blue in the figure.



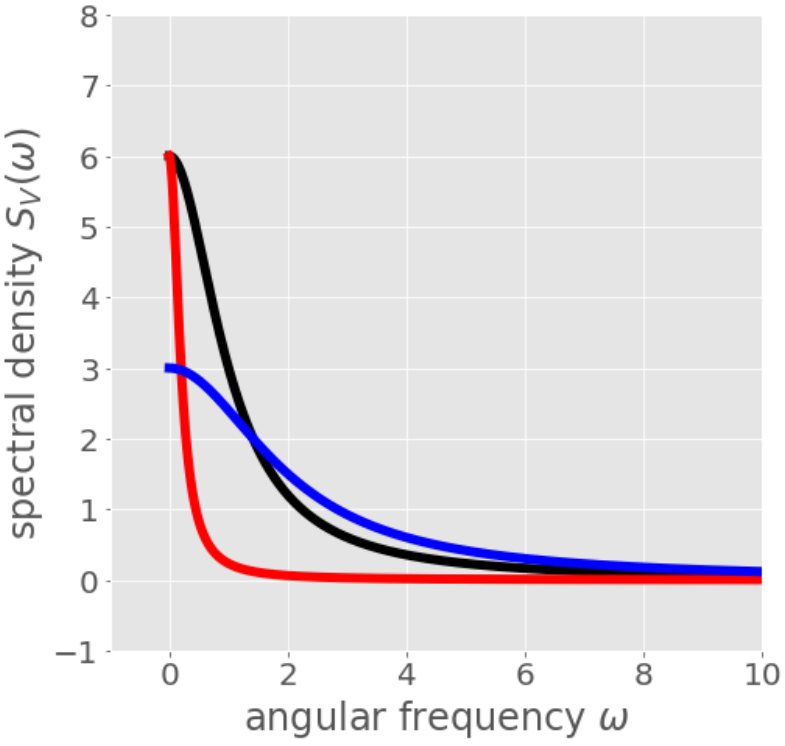
- Red $\{m = 1, \zeta = 10, k_BT = 1\}$, Blue $\{m = 1, \zeta = 0.1, k_BT = 1\}$
- Red $\{m = 1, \zeta = 1, k_BT = 1\}$, Blue $\{m = 0.1, \zeta = 2, k_BT = 0.1\}$
- Red $\{m = 0.1, \zeta = 1, k_BT = 0.1\}$, Blue $\{m = 1, \zeta = 0.2, k_BT = 1\}$
- Red $\{m = 0.1, \zeta = 1, k_BT = 1\}$, Blue $\{m = 2, \zeta = 1, k_BT = 2\}$
- Red $\{m = 2, \zeta = 2, k_BT = 2\}$, Blue $\{m = 2, \zeta = 0.2, k_BT = 2\}$

Submit You have used 0 of 2 attempts

Problem 2

0.0/1.0 point (graded)

In the following figure, the black line shows the power spectrum $S_V(\omega)$ for the velocity of Brownian particles with the following set of parameters: $\{m = 1, \zeta = 1, k_BT = 1\}$. Choose the correct set of parameter values for the power spectra colored in Red and Blue in the figure.



- Red $\{m = 5, \zeta = 1, k_B T = 1\}$, Blue $\{m = 1, \zeta = 2, k_B T = 1\}$
- Red $\{m = 1, \zeta = 0.2, k_B T = 0.2\}$, Blue $\{m = 2, \zeta = 2, k_B T = 1\}$
- Red $\{m = 1, \zeta = 0.2, k_B T = 1\}$, Blue $\{m = 1, \zeta = 2, k_B T = 2\}$
- Red $\{m = 5, \zeta = 10, k_B T = 5\}$, Blue $\{m = 1, \zeta = 0.2, k_B T = 0.2\}$
- Red $\{m = 0.1, \zeta = 1, k_B T = 0.1\}$, Blue $\{m = 1, \zeta = 0.2, k_B T = 1\}$

Submit You have used 0 of 2 attempts