Exercise #9
MB&B 361/562.
Due: before class on Tuesday, April 9, 2024
Please upload it to the Canvas Box (title: 'LastnameFirstname_ExerciseXX').

Answer the questions based on the MATLAB code: Diffusion_Ex9.mlx

1. (3 points) What is the diffusion coefficient based on the Mean-square displacement plot (the last Figure)?

2. (3 points) Double the amplitude of the noise in line 2. How does that affect the diffusion coefficient?

3. (3 points) Repeat with 10, 100 and 10,000 traces. What happens to the measurements (i.e. the displacement histograms and the mean-square displacement curve)?

4. (1 point for Graduate students, bonus for undergrads). Add measurement noise to the x trace (line 8). How does that affect the mean-square displacement curve? Can you still deduce the diffusion coefficient even in the presence of this measurement noise?