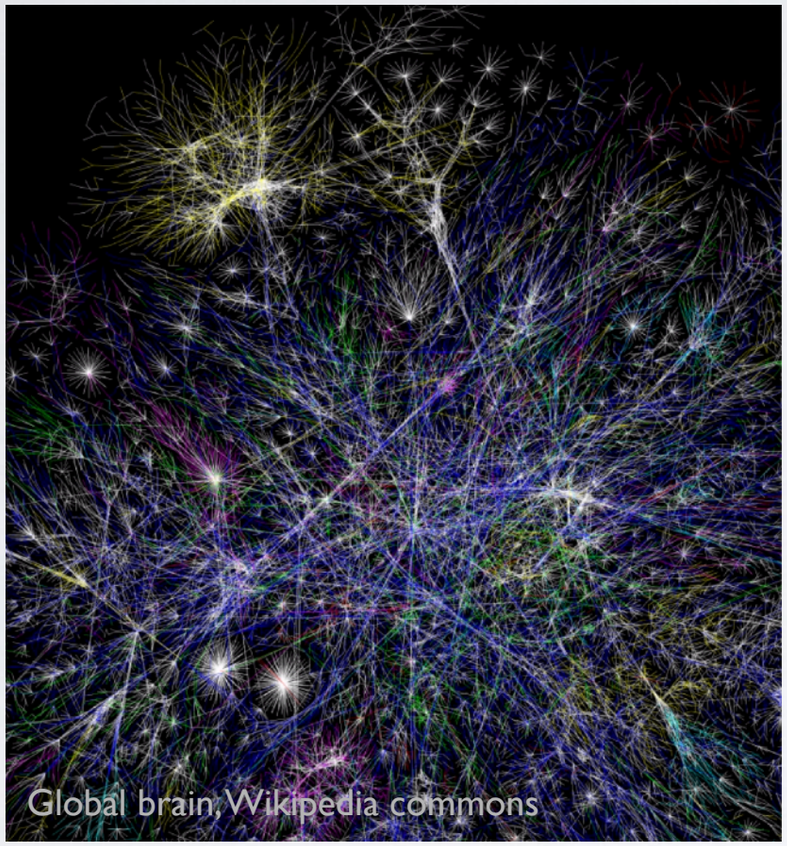
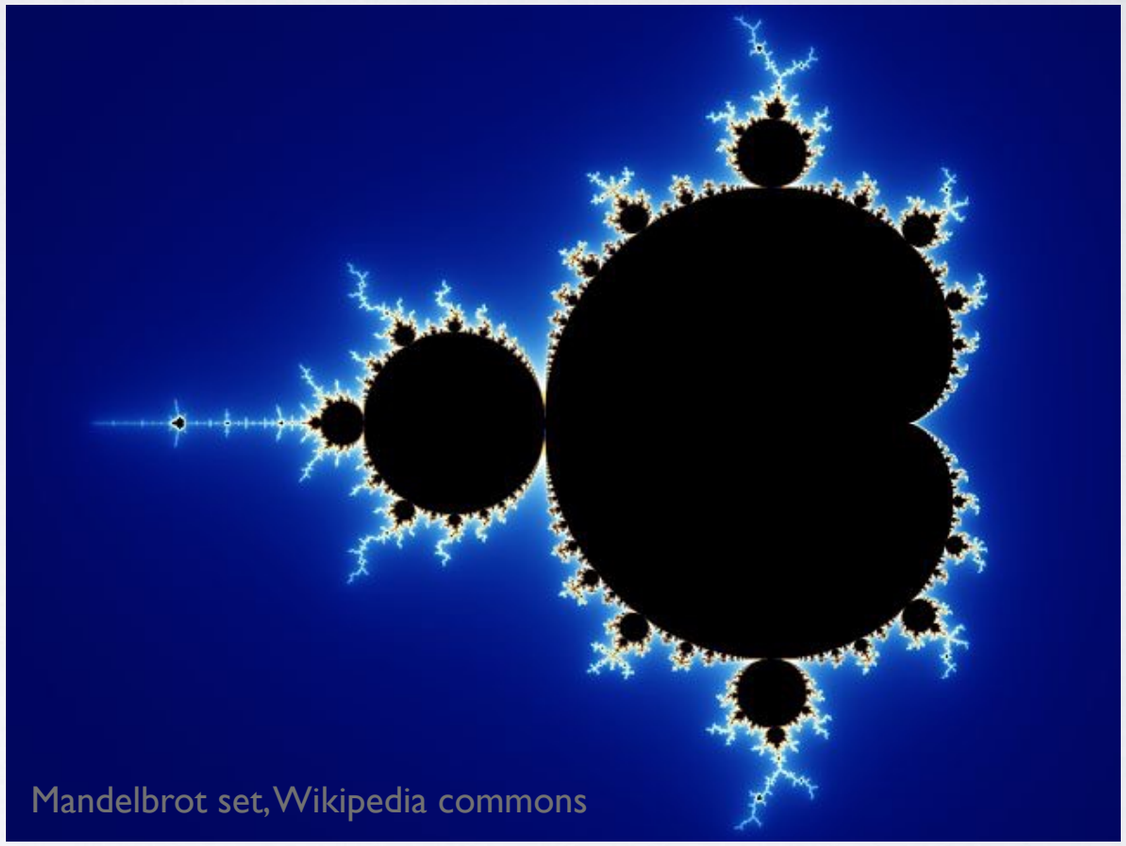
Week 4 - #1

Nonlinear Oscillations and Chaos (I)



Global brain, Wikipedia commons



Mandelbrot set, Wikipedia commons

Today: Ch 4.1-4.3

Next Class: Ch 4.4-4.6

Ji-hoon Kim (Seoul National University)

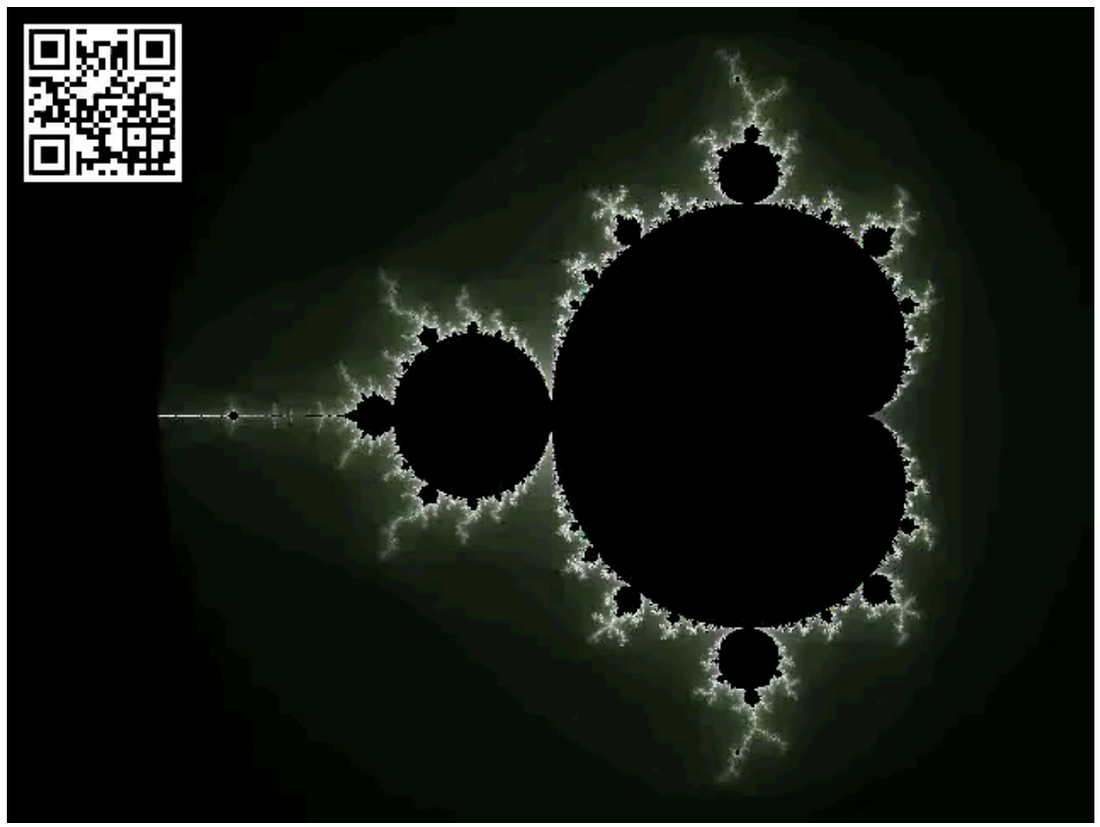
Classical Mechanics I (Spring 2026): Quiz #6

— [open book and open note, but no cellphone or laptop, drop it off as you leave the class] —

Please write down your name and student ID in the top right corner. (0.0 pt: no paper found with your name / 0.5 pt: paper found with your name and some answers / 1.0 pt: good answers)

1. Thornton & Marion, Problem 4-3.

2. Consider the differential equation, $\dot{x} = 2\sqrt{x-1}$. First, by separating variables find a solution containing one constant of integration, which we will call $x_1(t)$. Show that there also exists a trivial particular solution $x_2(t) = 1$ that is not in the form of $x_1(t)$. Finally, show that although $x_1(t)$ and $x_2(t)$ are solutions, $A_1 x_1(t) + A_2 x_2(t)$ is not a solution (i.e., superposition principle doesn't hold).



youtube.com/watch?v=G_GBwuYuOOs,
Mandelbrot set on complex plane