8/30/2021 near Mather house

Lecture 33

11/22/2021

Phase space analysis

Table of Contents

Review Harmonic Oscillator

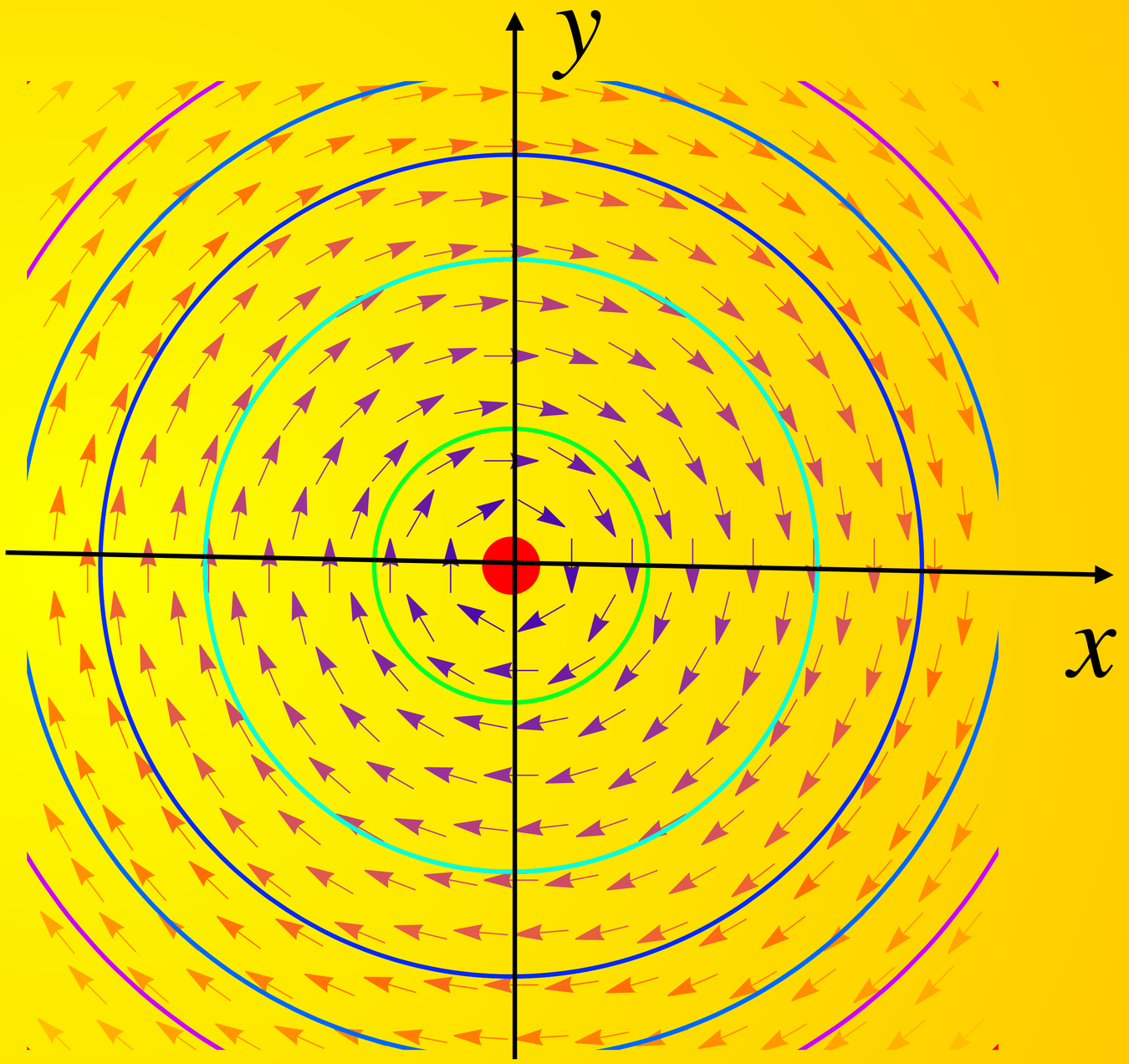
$$x'(t) = y$$
$$y'(t) = -x$$

Was also the Romeo-Julia System.

Harmonic Oscillator

$$x'(t) = y$$

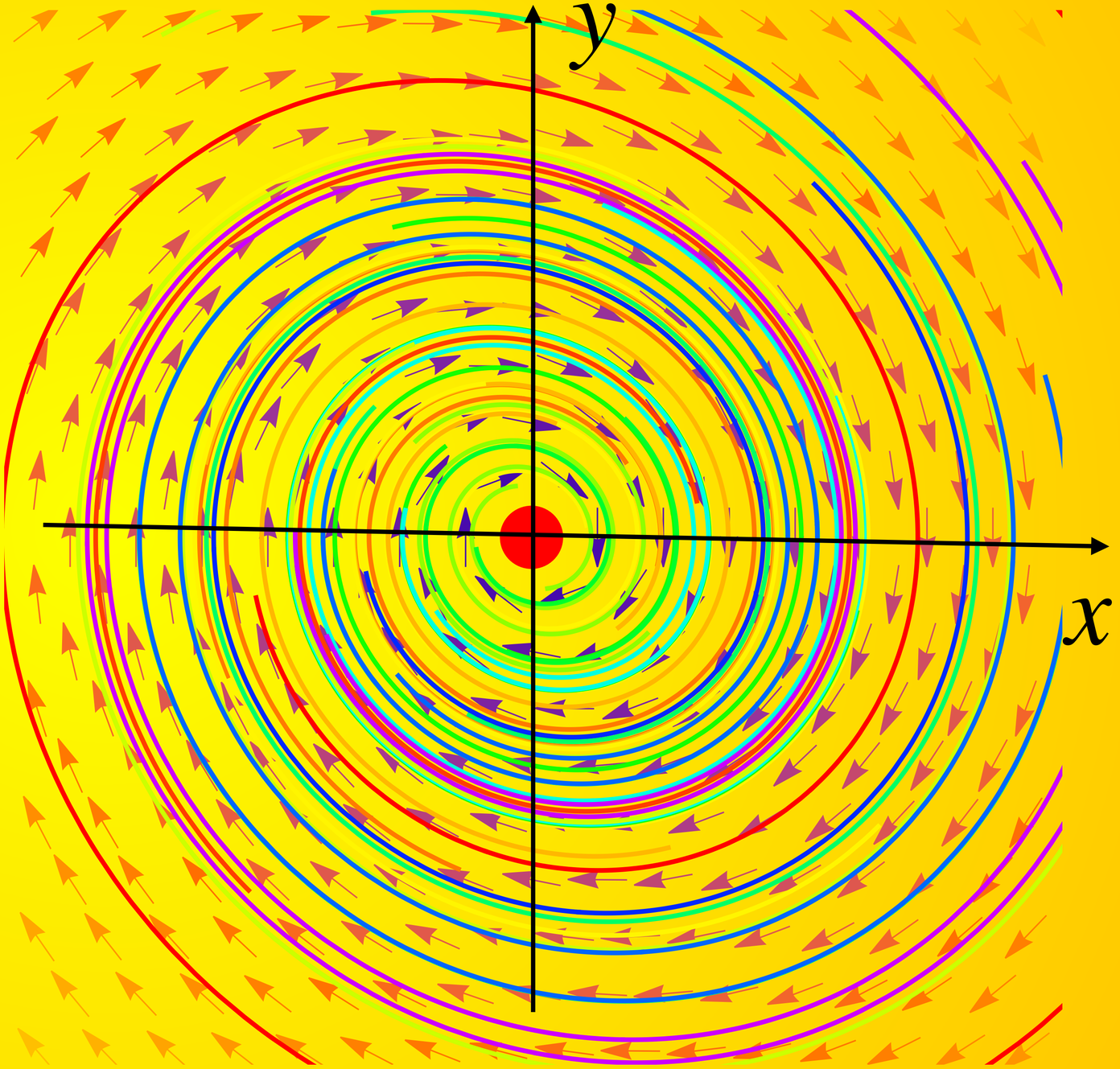
$$y'(t) = -x$$



Damped Oscillator

$$x'(t) = y$$

$$y'(t) = -x - by$$



Competing

$$x'(t) = x(6 - 2x) - xy$$
$$y'(t) = y(4 - y) - xy$$

We will do this analysis in class.

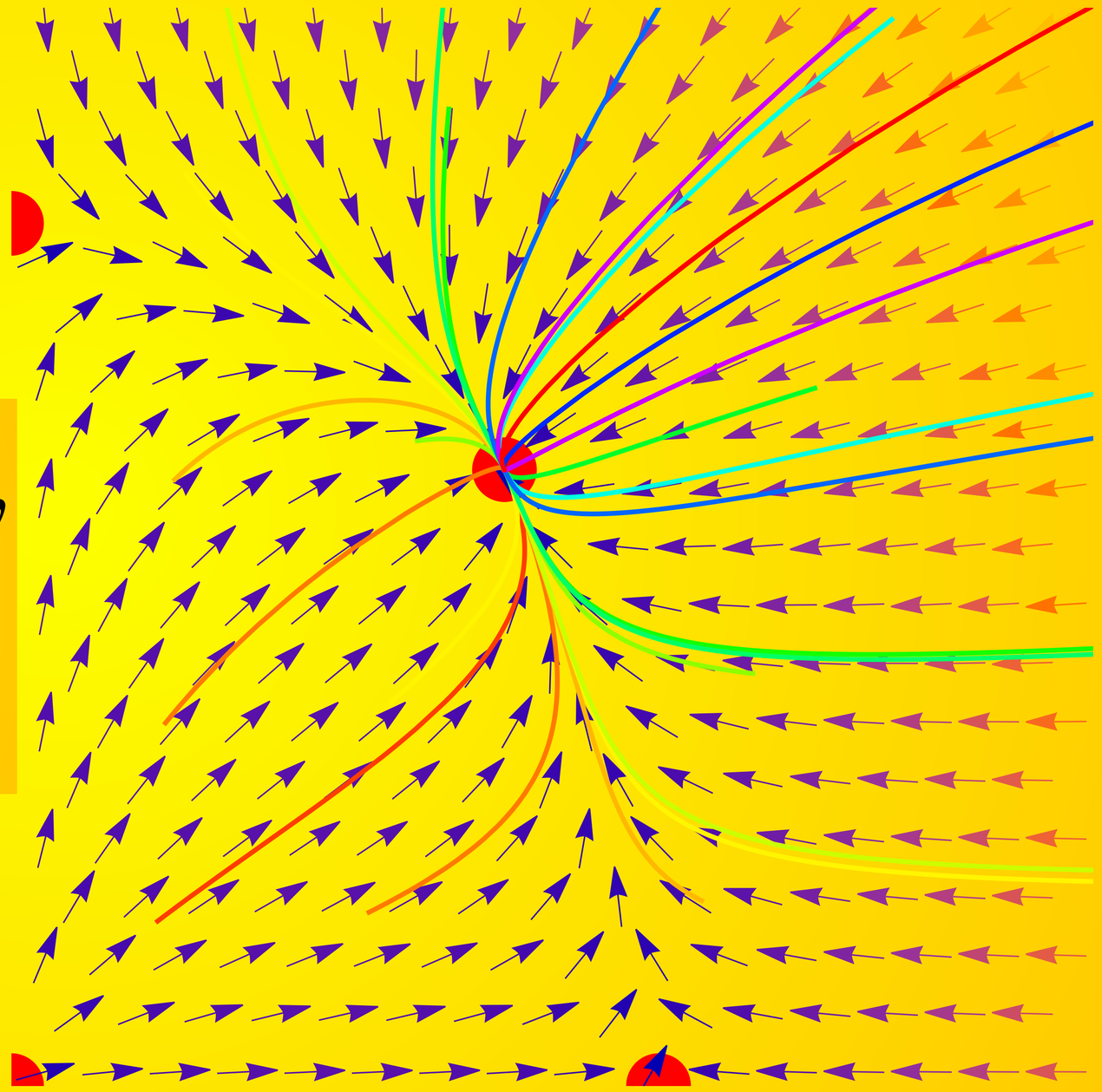
Competing

$$x'(t) = x(6 - 2x) - xy$$

$$y'(t) = y(4 - y) - xy$$

growth of x
gets slowed
with large y

growth of y
gets slowed
with large x



Reminders

HW 21 due Monday after thanksgiving

Happy Thanksgiving!

The End