

_3-nonlinear-dynamics-stability

goal: develop qualitative & quantitative tools to study nonlinear dynamics

topics:

1°. nonlinear dynamics

[Nv7 ch 2]

[AMv2 ch 5]

1¹. trajectories

1². collections of trajectories

1³. equilibrium trajectories

2°. stability

2¹. definition of stability

[Nv7 ch 6]

2². stability of linear DE

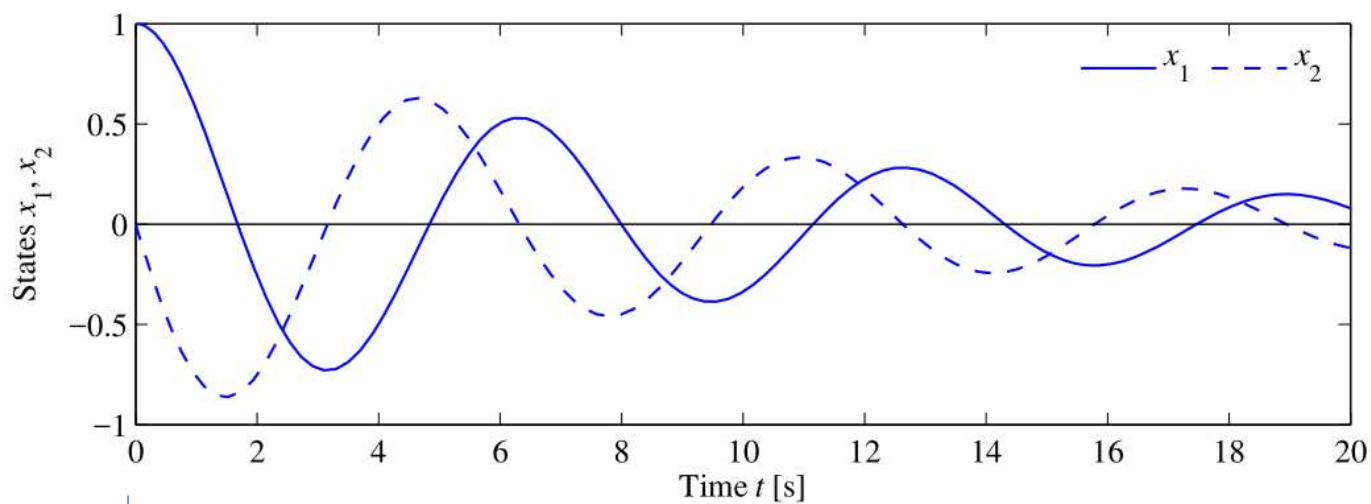
[AMv2 ch 6]

2³. parametric stability

[Nv7 ch 8]

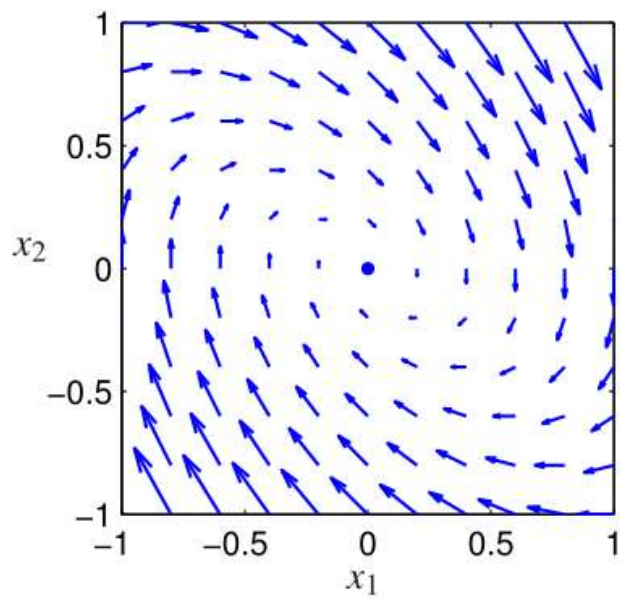
1°. nonlinear control systems

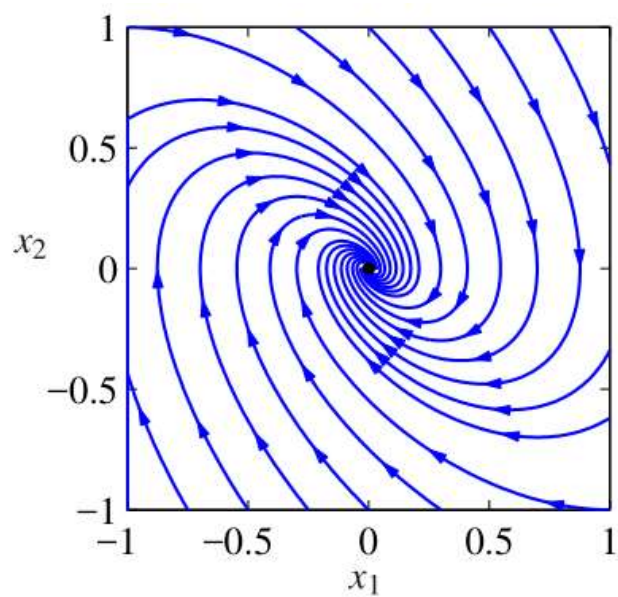
1: trajectories



↳ initial condition $x(0) = (x_1(0), x_2(0)) = (1, 0)$

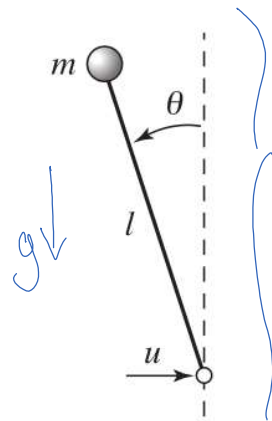
12. collections of trajectories



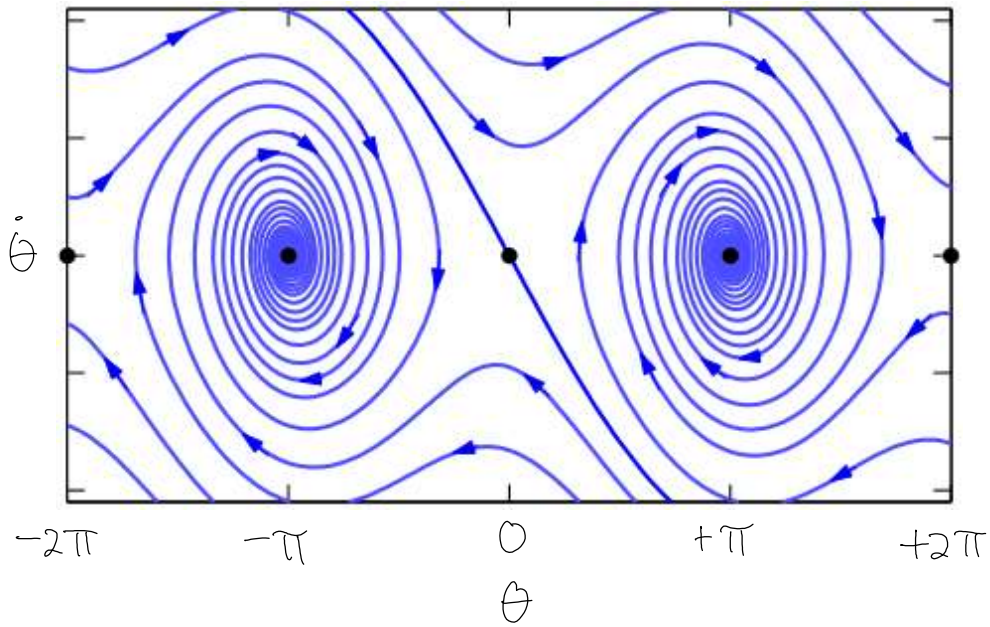


13. equilibrium trajectories

ex: inverted pendulum

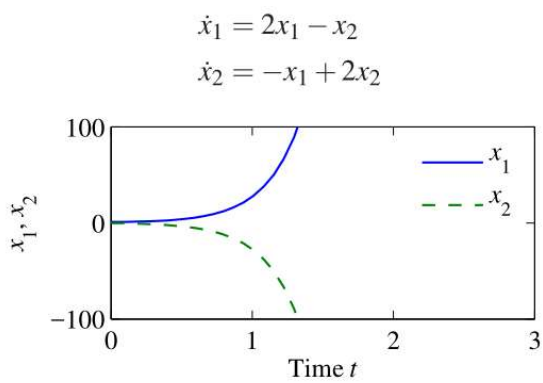
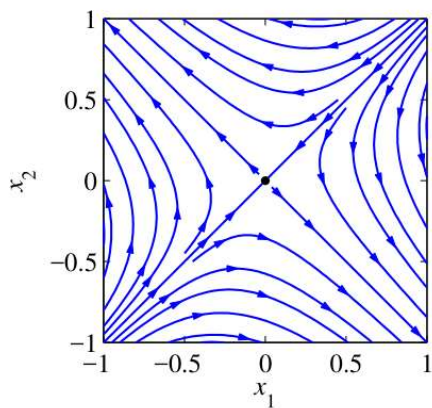
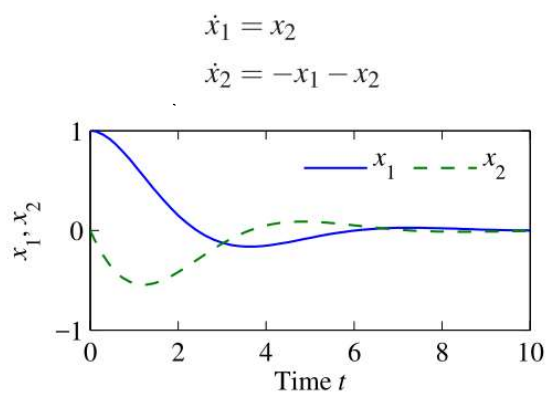
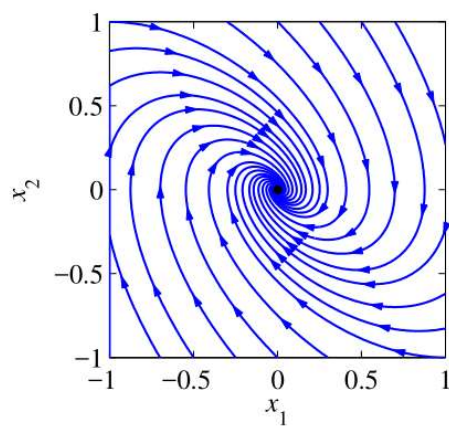


(very simple) model for rocket



2°. stability

2'. definition of stability



2². stability of linear DE
