

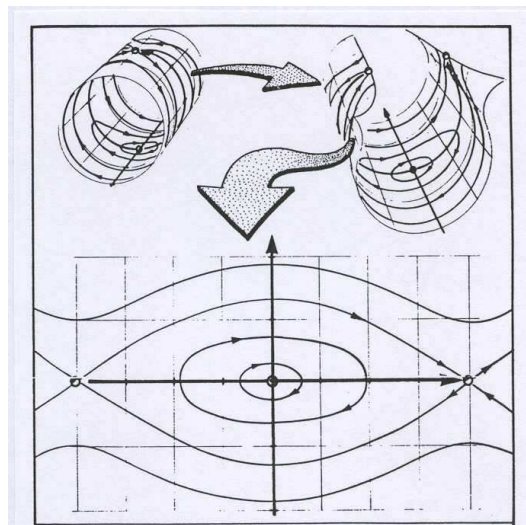
Phase Portrait: Plane Pendulum [ms18]

zero damping

$$\ddot{\theta} + \omega_0^2 \sin \theta = 0$$

1 hyperbolic point

1 elliptic point



nonzero damping

$$\ddot{\theta} + 2\beta\dot{\theta} + \omega_0^2 \sin \theta = 0$$

1 hyperbolic point

1 spiral attractor

