Principle

1. Double pendulum - Chaos

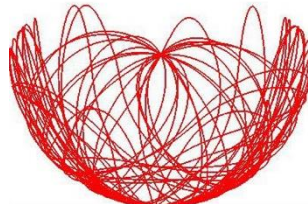| Random behavior	Chaotic behavior
Can't predict	Can predict
Non-determine	Fully determined by ***initial condition***

Imprecision of initial state -> error grows quickly with time

Trajectory in the plane -> dense
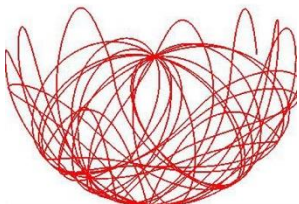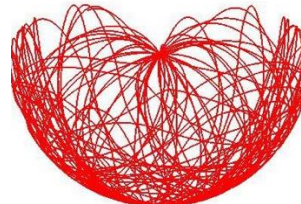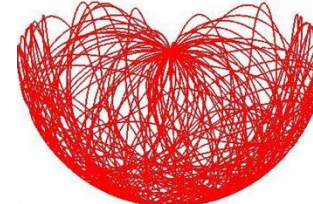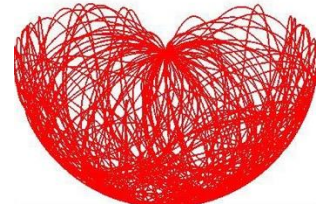
$t = 30$ $t = 60$ $t = 90$ $t = 120$ $t = 150$

Principle

2. Synchronization - Conservation of momentum

Natural frequency of one pendulum

Transfer the energy by basic

Driving frequency of the other pendulum