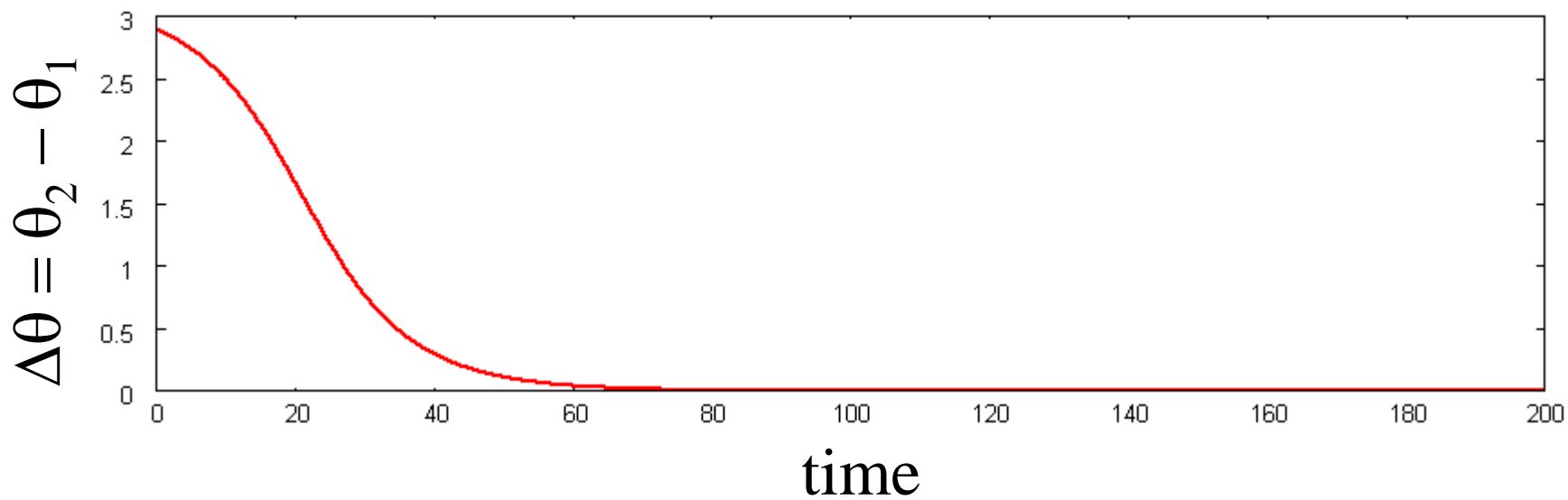
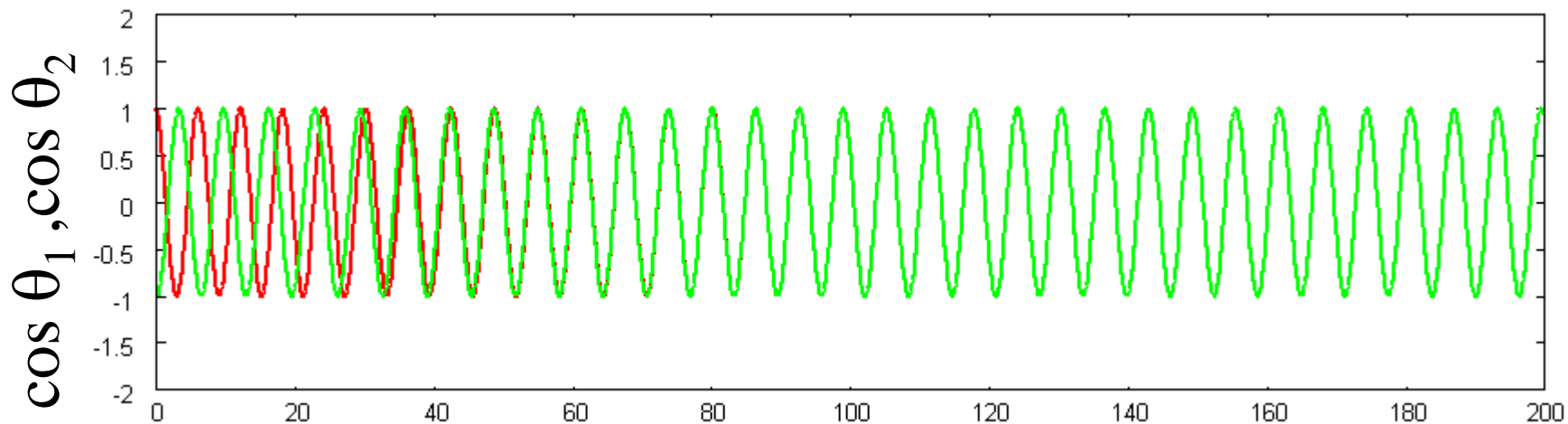


# 非線形振動子の結合系

## 2振動子の結合系

$$\left\{ \begin{array}{l} \frac{d\theta_1}{dt} = \omega_1 + K \sin(\theta_2 - \theta_1) \\ \frac{d\theta_2}{dt} = \omega_2 + K \sin(\theta_1 - \theta_2) \end{array} \right.$$

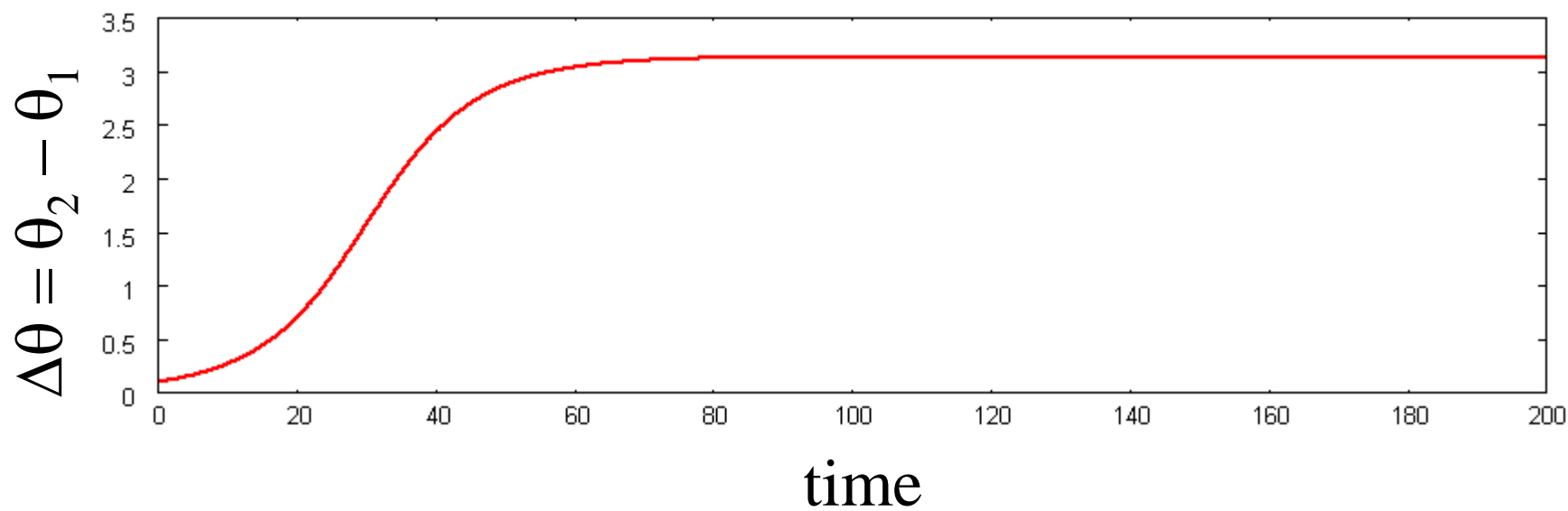
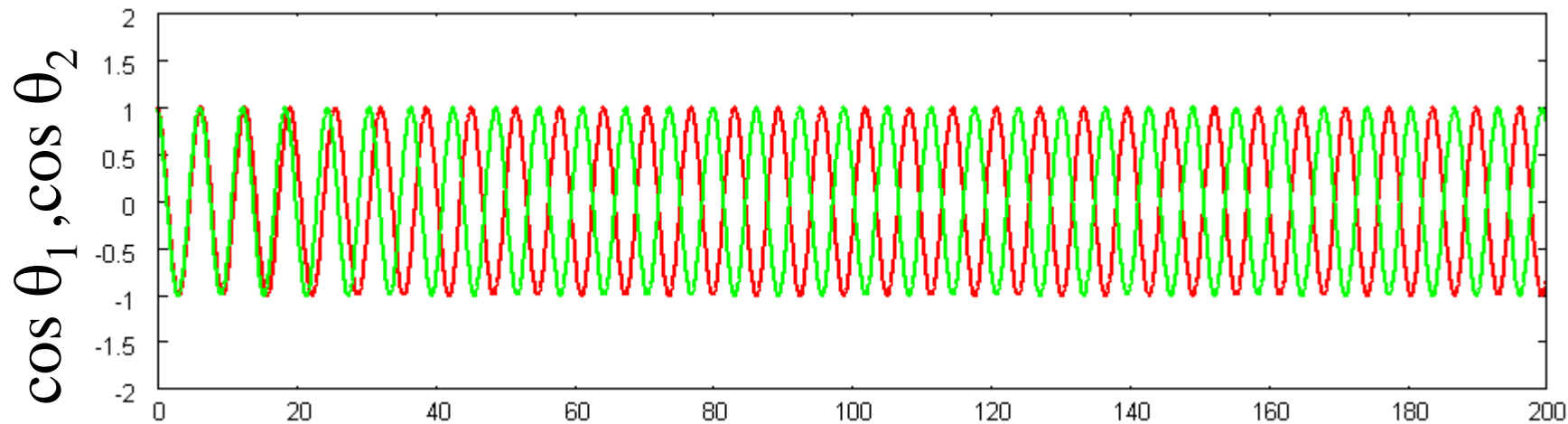
$$\begin{cases} \frac{d\theta_1}{dt} = \omega_1 + K \sin(\theta_2 - \theta_1) \\ \frac{d\theta_2}{dt} = \omega_2 + K \sin(\theta_1 - \theta_2) \end{cases} \quad \begin{aligned} \omega_1 &= \omega_2 = 1 \\ K &= 0.05 \end{aligned}$$



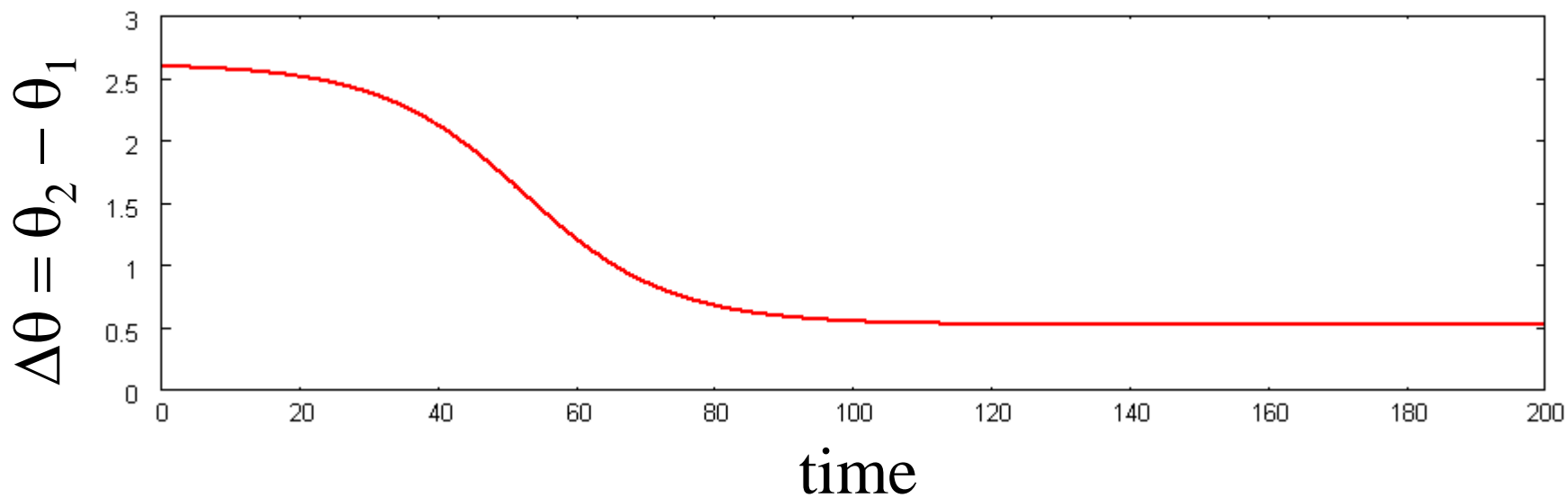
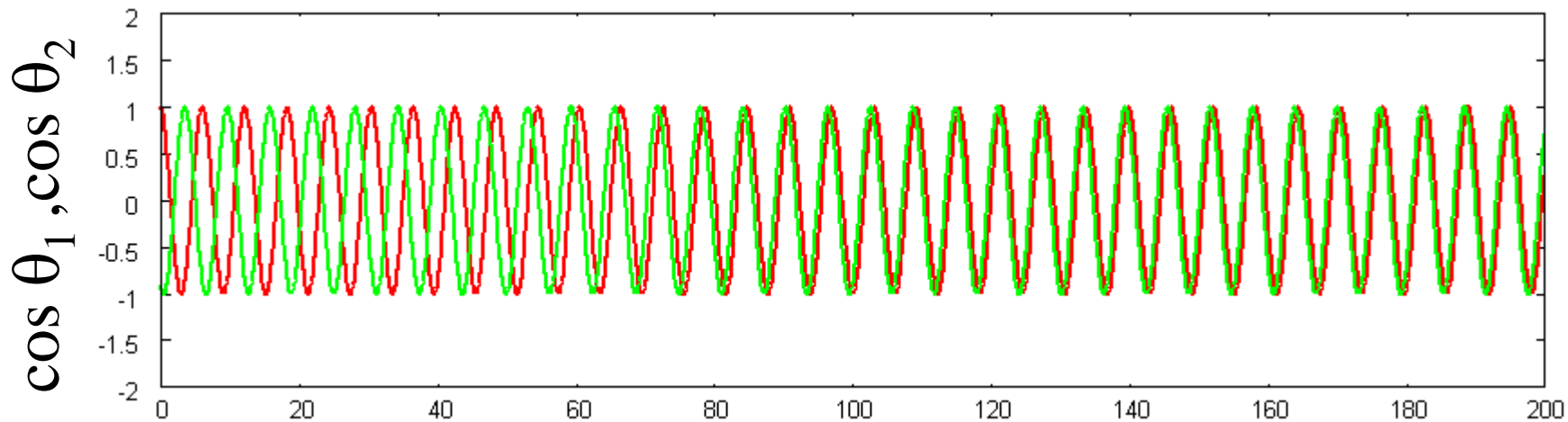
$$\begin{cases} \frac{d\theta_1}{dt} = \omega_1 + K \sin(\theta_2 - \theta_1) \\ \frac{d\theta_2}{dt} = \omega_2 + K \sin(\theta_1 - \theta_2) \end{cases}$$

$$\omega_1 = \omega_2 = 1$$

$$K = -0.05$$



$$\begin{cases} \frac{d\theta_1}{dt} = \omega_1 + K \sin(\theta_2 - \theta_1) \\ \frac{d\theta_2}{dt} = \omega_2 + K \sin(\theta_1 - \theta_2) \end{cases} \quad \begin{aligned} \omega_1 &= 1, \quad \omega_2 = 1.05 \\ K &= 0.05 \end{aligned}$$



$$\begin{cases} \frac{d\theta_1}{dt} = \omega_1 + K \sin(\theta_2 - \theta_1) \\ \frac{d\theta_2}{dt} = \omega_2 + K \sin(\theta_1 - \theta_2) \end{cases} \quad \begin{aligned} \omega_1 &= 1, \omega_2 = 1.05 \\ K &= -0.05 \end{aligned}$$

