Model Documentation of the 'CD player SLICOT Working note 2002-2'

1 Nomenclature

1.1 Nomenclature for Model Equations

x state vector
u control input vector
w noise vector
z regulated output vector
y measurement vector

2 Model Equations

State Vector and Input Vector:

$$x \in \mathbb{R}^1 20u \qquad \in \mathbb{R}^2 w \in \mathbb{R}^2 z \qquad \in \mathbb{R}^4 y \in \mathbb{R}^2$$

System Equations:

$$\dot{x}(t) = Ax(t) + B_1 w(t) + Bu(t) \tag{1a}$$

$$z(t) = C_1 x(t) + D_{11} w(t) + D12u(t) \tag{1b}$$

$$y(t) = Cx(t) + D21w(t) \tag{1c}$$

Outputs: z

2.1 Exemplary parameter values

Parameters omitted due to large matrizes. See Source code.

3 Derivation and Explanation

This model is part of the "'COMPleib"' - library and was automatically imported into ACKREP.
The original description was:
CDP CD player SLICOT Working note 2002-2 Y. Chahlaoui, P. Van Dooren
–> Ex. 2.3 W. Draijer, M. Steinbuch, O.H. Bosgra and "Adaptive control of the radial servo system of a compact disc player" Automatica, Vol. 28, No. 3, pp. 455-462, 1992
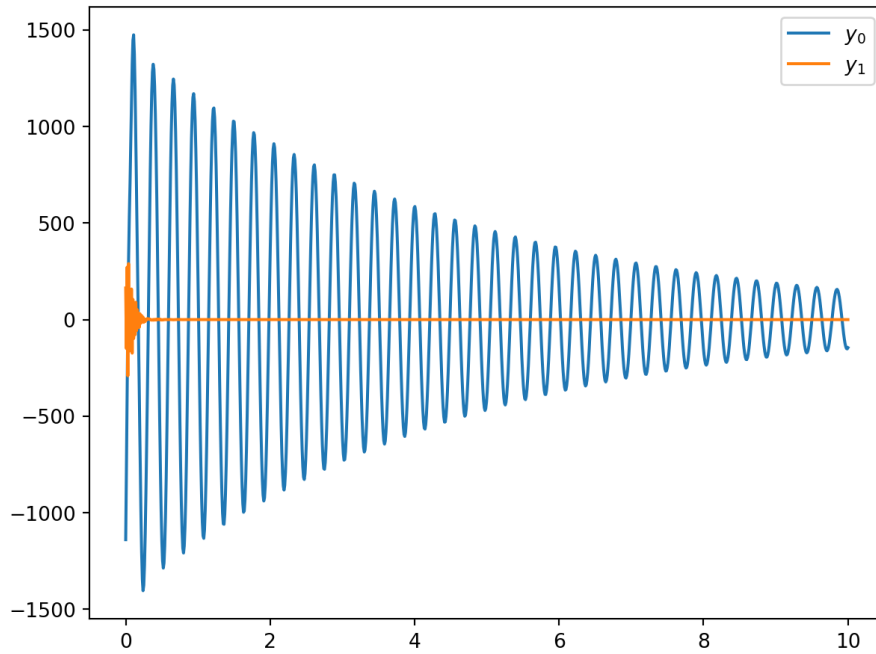
4 Simulation

Figure 1: Simulation of the CD player SLICOT Working note 2002-2.

References

[1] . Chahlaoui, P. Van Dooren –¿ Ex. 2.3 W. Draijer, M. Steinbuch, O.H.
Bosgra and "Adaptive control of the radial servo system of a compact disc
player" Automatica, Vol. 28, No. 3, pp. 455-462, 1992