Electronic supplementary material for PRSA article ‘A reduced order model from high dimensional frictional hysteresis’

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Electronic supplementary material

This document contains and describes electronic supplementary material for the PRSA article ‘A reduced order model from high dimensional frictional hysteresis’.

First, in the same folder, please find a matlab program called “find_eta.m” which minimizes

$$\min_{||\eta||=1} \sqrt{\eta^T A \eta + \eta^T (\bar{K}q - \bar{b}f)}$$

for given $A$, $\bar{K}$, $\bar{b}$ matrices (Eqs. 3.19 through 3.21 in the main article), forcing $f(t)$, and current state $q$.

Second, on the following pages, please see individual enlarged views of all the hysteresis loop plots reported in Figures 9 and 10 of the main article. Refer to the Tables 1 and 2 there for the forcing histories.

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1. Enlarged views of the individual cases reported in Figures 9 and 10 of the main document

Figure 1. Case 1 of Figure 9
Figure 2. Case 2 of Figure 9
Case 3 (Table 1)

Figure 3. Case 3 of Figure 9
Figure 4. Case 4 of Figure 9
Figure 5. Case 5 of Figure 9
Figure 6. Case 6 of Figure 9
Figure 7. Case 1 of Figure 10
Figure 8. Case 2 of Figure 10
Figure 9. Case 3 of Figure 10
Figure 10. Case 4 of Figure 10
Case 5 (Table 2)
Figure 12. Case 6 of Figure 10