

4-1. POUNDING EFFECTS ON THE SEISMIC RESPONSE OF ADJACENT RC STRUCTURES: A STOCHASTIC NUMERICAL APPROACH FOR UNCERTAIN INPUT PARAMETERS

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Abstract: A stochastic numerical treatment for the pounding problem concerning the seismic interaction between adjacent structures is presented when the input parameters are uncertain. This problem concerns the elastoplastic-fracturing unilateral contact between neighboring structures during earthquakes and is considered as an inequality problem of dynamic structural contact mechanics. The Monte Carlo method is used for treating the uncertainty concerning input parameters. The purpose here is to estimate numerically and to control actively the influence of the interaction effects on the seismic response of the adjacent structures. Finally, in a practical case of two seismically interacting framed reinforced concrete (RC) structures, the effectiveness of the proposed methodology is shown.

Keywords: *Seismic Pounding, Uncertain input parameters, Monte Carlo method*

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