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3D NONLINEAR PARALLEL FEM ANALYSIS FOR SEISMIC EARTH PRESSURES OF A SATURATED SOIL LAYER
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In this study a 3D nonlinear parallel FEM formulation was derived for dynamic soil structure interaction problems. To express the nonlinear property of the saturated soil the simplified bounding surface model was used referring the Wolf and Crouch's study. In the implementation of the parallel processing algorithm for the 3D nonlinear FEM formulation, Domain Decomposition Method and Conjugate Gradient Method were applied. To see the validity of the proposed parallel analysis a seismic earth pressure test using a shaking table was simulated. The numerical results for the seismic active earth pressures and dynamic pore water pressures acting on the wall coincide well with those of the experiment.

Key Words: parallel processing, dynamic response, earth pressure, saturated layer, bounding surface

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