World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:16, No:02, 2022

Wave Transmitting Boundary in Dynamic Analysis for an Elastoplastic Medium Using the Material Point Method

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Abstract : Dynamic analysis of slope under seismic condition requires the elimination of spurious reflection at the bounded domain. This paper studies the performances of wave transmitting boundaries, including the standard viscous boundary and the viscoelastic boundary to the material point method (MPM) framework. First, analytical derivations of these non-reflecting conditions particularly to the implicit MPM are presented. Then, a number of benchmark and geotechnical examples will be shown. Overall, the results agree well with analytical solutions, indicating the ability to accurately simulate the radiation at the bounded domain.

Keywords : dynamic analysis, implicit, MPM, non-reflecting boundary
Conference Title : ICNMGE 2022 : International Conference on Numerical Modeling in Geotechnical Engineering
Conference Location : Dubai, United Arab Emirates
Conference Dates : February 15-16, 2022