

Dynamic Analysis Of Rocking-Wall Frame Structures Considering Ssi Effect

Dongyi HE, Peizhen LI

In the rocking-wall frame structure, the rocking wall redistributes the internal force of the structure by controlling the deformation mode of the frame part. However, considering the soil structure interaction (SSI) effect, the overall translation and rotation of the structure have a certain impact on the control effect of the rocking wall. In this paper, a typical 4-span rocking-wall frame was modeled in OpenSEES as the research object and the effect of soil on pile foundation is considered as spring. Taking the inter-story displacement angle as the damage measure and PGA as the intensity measure, the incremental dynamic analysis (IDA) is conducted to estimate the fragility curve, so as to evaluate the fragility change of rocking-wall frame structure considering SSI effect. The analysis result indicates that under the condition of soft soil foundation, the overall dynamic response of rocking-wall frame structure considering SSI effect will become larger and the fragility get worse.