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Evaluation of ground motion coherency function using probabilistic dynamic analysis

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ABSTRACT

The seismic soil-structure interaction can be estimated more precisely with ground motion incoherent analysis method. For the incoherent analysis, the ground motion coherency reduction with frequency and separation distance characterized by ground motion coherency function (EPRI, 2007). The ground motion coherency function is the one of essential input parameters of the incoherent soil-structure interaction (SSI) analysis on nuclear power plant structures. Various ground motion coherency functions have been provided based on several dense seismic array data. However, the ground motion coherency function is site-specific because the ground motion incoherency is induced by the near surface scattering of seismic wave (Abrahamson, 2007; Svay, 2018). In this study, probabilistic dynamic analysis based on site-specific spatial variability was conducted to estimate the ground motion coherency function.

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