斜張橋考慮土壤結構互制之震力分析

It is essential to consider the effect of Soil-Structure interactionin seismic analysis of cable-stayed bridges. Since the geometricnonlinerarity is usually taken intoaccount for this type of bridges, the solution of soil-structure interation must be hence limited intime domain. The conventional models such as the use of the impedancefunctions or equivalent soil springs are not only mostly built on thebasis of frequency domain but also rather insufficient for acquiring aprecise solution, therefore the modelling of consistent infinitesimalfinite-element cell method is chosen to solve the soil- structureinteraction in this research. To investigate the dynamic behaviors forthe structure under simultaneous action of various earthquakecomponents, a 3-D seismic analysis will be performed, in which thepile foundation, near field soil and the bridge itself are allmodelled by appropriate finite elements. Furthermore, the influenceson the structural behaviors due to the variation of deck length, towerheight, soil property and the ratio of vertical domponent tohorizontal component of the seismic force would be analyzed detailedlyin the research.