



近场简支梁铅芯橡胶支座隔震特性分析

The isolation characteristic analysis of the simple supported bridge in near field

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中文摘要

随着公路桥梁的建设和隔震技术的发展,近断层隔震桥梁的抗震性能研究十分必要。本文以一座简支微弯梁桥为例,通过非线性时程的方法,探讨了简支梁桥在近场地震作用下桥梁的减隔震特性及参数变化规律,分析研究结果表明:该隔震简支梁桥在近场地震作用下墩底弯矩和支座位移比远场地震作用下大;采用隔震技术后,在近场地震作用下仍具有有效的减震效果;纵横向支座位移随屈服强度的增加而减小,纵横向支座位移都有随初始刚度增加而减小的趋势,墩底弯矩因波脉冲不同和各墩刚度不一,其随初始刚度和屈服强度的变化不一。

英文摘要

With the development of the isolation technology and the construction of the highway bridges, it is necessary to research the seismic performance of the isolated bridge to the near fault earthquake motions. In this paper, for a slightly curved simple supported isolated bridge, the characteristic and the rule of parameters of the lead rubber bearing (LRB) are studied by Nonlinear dynamic time history analysis. Some important conclusions are presented: the moment at the bottom of piers and displacements of LRB are larger to near fault earthquake motions than those to far fault earthquake motions; it is efficient to reduce the response of isolated bridge to the near fault earthquake motions by isolation technology; The bearing displacement is reduced with the increment of the initial stiffness and the yielding strength, while the moment at the bottom of the pier is varied because of the different stiffness and pulse type.

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