

## عنوان مقاله:

Modal characteristics of integral bridges including the effect of soil-structure interaction

## محل انتشار:

دهمین کنگره بین المللی مهندسی عمران (سال: 1394)

تعداد صفحات اصل مقاله: 8

## نویسندگان:

Ehsan Mohtashami - Assistant Professor, Department of Civil Engineering, University of Birjand, Iran

Ahmad Shooshtari - Assistant Professor, Department of Civil Engineering, Ferdowsi University of Mashhad, Iran

## خلاصه مقاله:

A numerical study is conducted in this paper to investigate the effect of soil-structure interaction on modal characteristics of an integral bridge. The study includes four different interaction scenarios applied to a four-span integral reinforced concrete bridge. These scenarios are selected such that they capture common boundary conditions of pile foundations supported on sandy soil. A three dimensional fiberbased distributed plasticity finite element analysis is carried out in OpenSees to assess the dynamic response and modal properties of the bridge. Numerical results indicate that modal characteristics of the bridge can be significantly affected in different interaction scenarios. Besides, the effect of higher modes may vary in different soil-structure interaction scenarios. As the stiffness of the foundation and soil increases, the contribution of higher modes in the behavior of the bridge increases. Therefore, the effect of soil-structure interaction should be carefully modeled and included in the seismic assessment of integral bridges in order to achieve realistic and accurate seismic evaluation for engineering applications

## کلمات کلیدی:

Modal characteristics, Higher modes, Soil-structure interaction, Integral bridge

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/364169>

