

عنوان مقاله:

DAMAGE DETECTION OF BRIDGES USING THE RESPONSE POWER SPECTRAL DENSITYFUNCTION AND SENSITIVITY EQUATION

محل انتشار:

هفتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1394)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Structures undergo different types of loading during their lifetime. As these loads cause the performance of the structures to decay gradually, the urge of damage detection using nondestructive methods has been felt during the past two decades. In this study, a structural damage detection method is presented using measured power spectral density data. It uses the power spectral density function and the decomposed form of frequency response function to evaluate response sensitivity with respect to the change of stiffness parameters for finite element model updating. Damage is considered to be a reduction in structural stiffness parameters. For frequency domains introduced here, updated stiffness parameters are captured with high accuracy through solving the sensitivity equations by the least square approach. MATLAB software is used for the numerical analyses. The performance of this method is investigated through identifying the damage of a bridge truss structure considering different damage scenarios.

کلمات کلیدی:

System Identification, Damage Detection, Power Spectral Density, Sensitivity Equation

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<https://civilica.com/doc/1132643>

