Abstract

Gravity dams are structures commonly used in electricity generation, water supply, flood control and other purposes. Concerns about the safety of these structures when subjected to dynamic loads are an important issue for new projects and in maintenance programs for already built dams. Isogeometric Analysis (IGA) is a numerical approach that allows the discretization and analysis of continuous medium using the approximation functions generated in the construction of digital models or Computer Aided Design (CAD) models. In the present study, first IGA is applied in the study of free vibration behavior of a two dimensional dam model. Then the dynamic response of the structure subjected to time varying loads is obtained using the Central Difference Method (CDM). Numerical tests are performed to show the applicability and future applications are discussed.

Index Terms

Computer Science

Information Sciences

Keywords

Dynamic response, Isogeometric analysis, Gravity dam.