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## Evaluation of Seismic Behavior the Weight Concrete Dams Subjected to the Rotational Components of the Earth's Strong Motion

Hossein Mirzaaghabeik \*, Rafael Holdorf Lopez, Marcos Souza Lenzi, Hannane Hatami

1.2.3. Center for Optimization and Reliability in Engineering (CORE), Civil Engineering Department,  
Federal University of Santa Catarina, Rua João Pio Duarte Silva, s/n 88040-900 Florianópolis, SC,  
Brazil.

[Hossein\\_aghabeik@yahoo.com](mailto:Hossein_aghabeik@yahoo.com)

4. Department of Civil Engineering, South Tehran Branch, Islamic Azad University, Tehran, Iran

### Abstract

Among the hydraulic structures, the dams have a unique position because of their special role in economic and agricultural development. The high cost, variety and complexity of the factors involved in design of such structures, in addition to the need of increasing the height, have caused to consider the sufficient reliability coefficient, as well as increasing development in design and implementation methods. The rotational components of the ground motions are one of the issues that has not been seriously considered by researchers in analysis and design of the concrete dams. So that, this study aims to examine the rotational components of the ground motions on the linear response of gravity concrete dams. To this end, first of all, the rotational components were extracted by using the advanced method of Hong Nan Li, et al. then, these components were applied to the Koyina gravity concrete dam and the results were examined. The results showed that the frequent content of earthquake has a special importance and if it is accompanied by a large rotational component range, it will significantly increase the dam response.

**Keywords:** Gravity Concrete Dam, Rotational Components, Hong Nan Li's Method, Frequent Content, Strong Ground Movement.