

## ROCKING ANALYSIS FOR THE BELL TOWER OF SANT'ANNA IN CERVINO

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**Key Words:** *Masonry, Bell tower, Rocking, Vulnerability.*

In seismic prone areas ecclesiastical masonry complexes have shown a very high vulnerability, as detected after the last Italian earthquakes, such as those occurred in L'Aquila (2009), Emilia-Romagna (2012), Central Italy (2016), and Ischia (2017). These are particular types of aggregate buildings often subjected to partial collapses, due to the presence of highly vulnerable elements, like the bell towers. Preliminary analyses should include straightforward and quick methods are necessary.

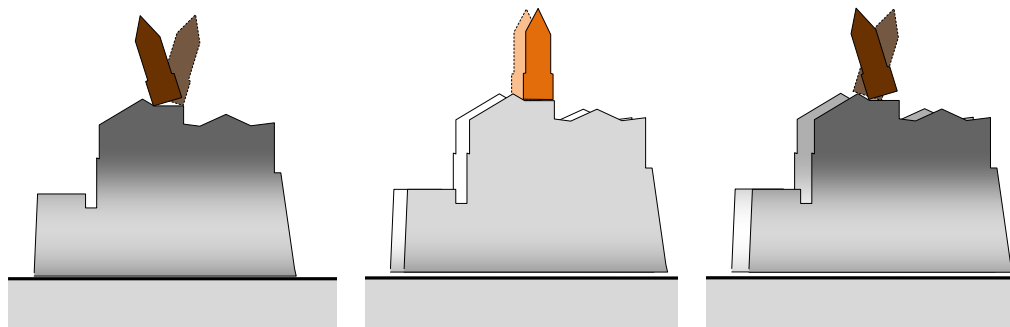


Fig. 1: Aggregate building with rocking bell tower. Possible motions

In this paper the bell tower vulnerability is analyzed taking into account the rocking behaviour of the tower only and considering the contribute of the entire ecclesiastical complex as a rigid body sliding with a fixed friction coefficient with respect to the foundations (Fig. 1). It is shown that suitable values of maximum oscillations and horizontal displacements are obtained. The case study is the ecclesiastical complex of S. Anna in Cervino (Caserta, Italy).

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