
Contribution ID: **159** Type: **Poster**

# Bridge Resilience to Earthquakes: Comprehensive Review of Seismic Response, Fragility, and Isolator Effectiveness

ABSTRACT
Bridges are critical lifeline structures whose functionality is pivotal to minimizing social and economic losses in the aftermath of an earthquake. Their operational integrity directly affects the resilience of the entire transportation network. Given the risk of strong aftershocks exacerbating damage to bridges already weakened by the mainshock, precise evaluation of their structural performance in real-time during seismic sequences is crucial. It is important to assess the performance of the bridge accurately in these situations in order to be able to quickly and effectively implement response plans. Besides, this evaluation is also the source of information on long-term initiatives to replace, retrofit, or repair the structure that is being provided to the immediate post-earthquake period such as examination of the safety systems of bridges and the fragility assessment. The research presents advantages and disadvantages of different types of seismic isolators, bridge fragility assessments, and fragility assessment methodologies for the purpose of setting a deeper understanding of fragility in seismic circumstances as a way to guide the creation of new and more rigid bridge design and assessment procedures.

Keywords: Seismic Response, Bridge Structures, Fragility Assessment, Seismic Vulnerability, Seismic Isolators

**Author:** SATYANARAYANA, Ashwini (JAIN University)

**Co-authors:** Dr BABU R, Dushyanth V (JAIN University); Mrs SATYANARAYANA, Ashwini (Dayananda Sagar College of Engineering); Ms H M, Sheethal (Dayananda Sagar College of Engineering)

**Presenter:** SATYANARAYANA, Ashwini (JAIN University)

**Track Classification:** Engineering & Technology