

## Observations from Testing of Steel Structural Components with Near-Fault Loading

Chia-Ming Uang  
Professor  
University of California, San Diego  
[cmu@ucsd.edu](mailto:cmu@ucsd.edu)

### **Abstract**

While a significant amount of research has been conducted to evaluate the effect of near-fault ground motions on seismic demand of structures, experimental testing that evaluates the effect of such round motions on steel structural responses is very limited in the U.S. For testing purposes, SAC Joint Venture developed two test loading protocols, one for far-field and one for near-fault ground motion effects in the late 1990s. But only the former loading protocol is included in the AISC Seismic Provisions. That is, near-fault ground motion effect does not have to be considered in qualification tests for moment connections, links, and buckling-restrained braces.

In this presentation, observations from cyclic response of structural steel components (moment connections, columns, and buckling-restrained braces) tested with both far-field and near-fault loading protocols are to be presented. The effect of higher loading rate with the latter protocol will also be evaluated.