

# ***Supercomputer Modeling of Earthquake Ground Motions 150 Years After the October 21, 1868 Hayward Fault Rupture***

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The Hayward Fault presents significant earthquake ground motion hazard to the eastern San Francisco Bay Area. This year marks the 150th anniversary of the last major rupture on the Hayward Fault. The earthquake of October 21, 1868 is believed to have had a magnitude in the range 6.4-7.0. Geologic evidence indicates there have been 11 such earthquakes on the Hayward Fault with average recurrence intervals of about 150 years. So another large damaging event on the Hayward Fault in the coming years can be expected. This talk will review what is known about the 1868 on the Hayward Fault and how we can estimate the shaking intensities from a similar event. Developments in numerical methods, computer algorithms, three-dimensional geologic/seismic earth models along with powerful parallel supercomputers now enable simulation of earthquake ground motions with unprecedented resolution and realism. I will describe recent supercomputer simulations of earthquake shaking for a large event on the Hayward Fault and what ground motions and damage can be expected.

**Biography:** **Arthur Rodgers** studied Physics at Northeastern University (B.S, 1986) and the University of Colorado, Boulder (Ph.D, 1993). He worked as a post-doc at New Mexico State University (1994) and the University of California Santa Cruz (1994-1996). He joined the Seismology Group at LLNL as a postdoc in 1997 and was the Seismology Group Leader 2006-2010. In 2010 he was a Fulbright Scholar to Grenoble, France. In addition to being a permanent technical staff member at LLNL, Dr. Rodgers is a Visiting Scientist at the University of California, Berkeley Seismological Laboratory and an Affiliate of Lawrence Berkeley National Laboratory.