

The 2009 Annual Graphics Competition

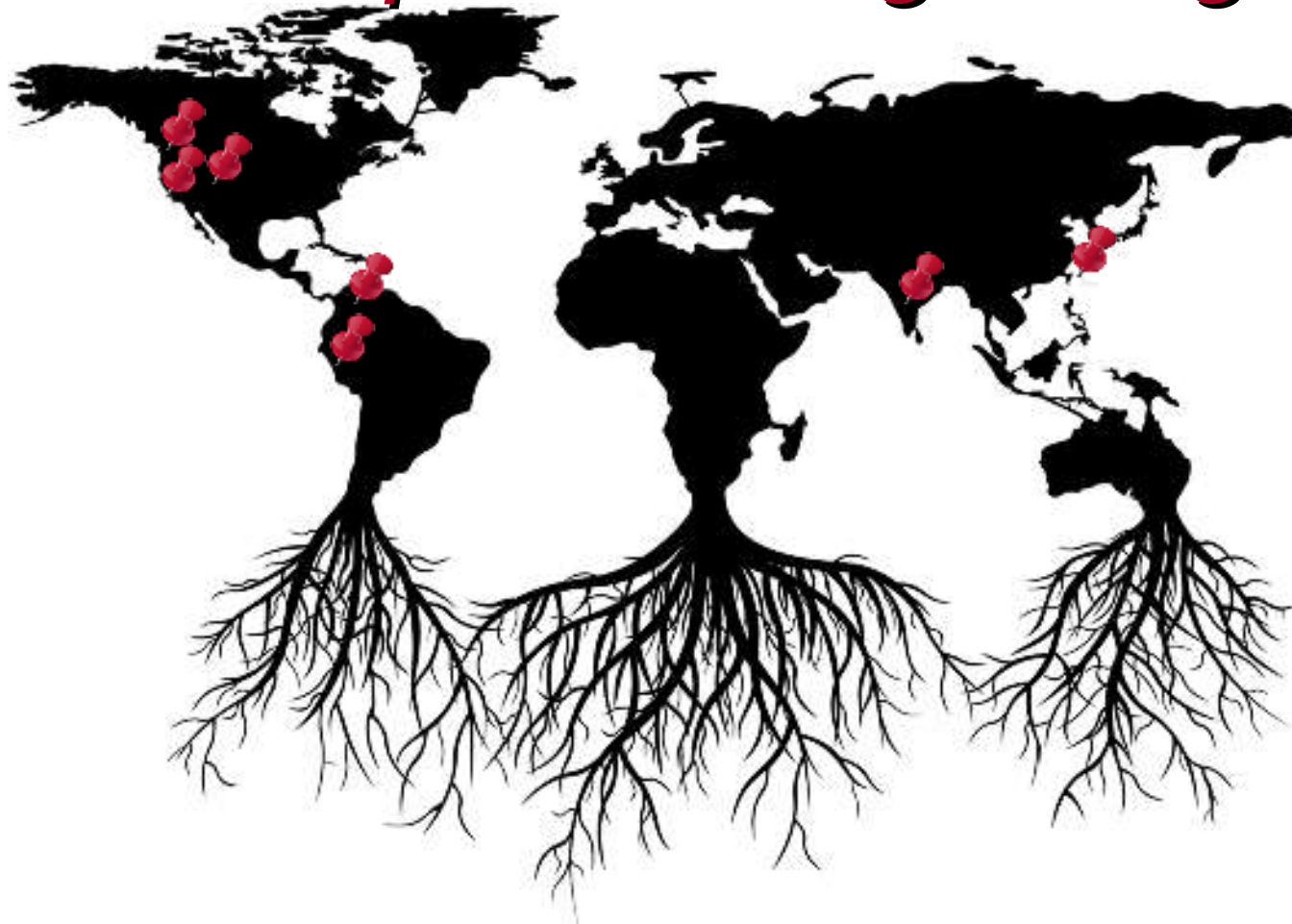
At the 62th Annual Meeting of EERI

San Francisco, California



**Earthquake Engineering
Research Institute**

The competition is growing...



**Earthquake Engineering
Research Institute**

Purpose

In line with EERI's Strategic Plan 2006-2010, the Annual Graphics Completion was proposed to:

- *Encourage innovative thinking, and*
- *Promote a sense of participation and competition in a multidisciplinary environment.*



Rules

- Open to all EERI Members!
- Artwork should be related to earthquake science and engineering, earthquake causes, and their consequences



Categories and Judging Criteria

- Drawings and paintings
- Graphs and diagrams
- Symbols and mathematics
- Maps
- Photography
- Engineering drawings
- Computer graphics
- Web graphics
- Moving pictures, and
- Presentations files
- Originality
- Design quality
- Conceptual strength
- Artistic presentation
- Relevance and significance

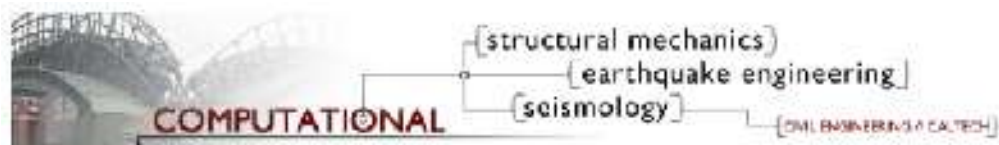


2009 Judges

- *Barry Ralphs*, Tipping Mar & Associates
- *Ricardo Taborda*, Carnegie Mellon University
- *Farzin Zareian*, University of California – Irvine

With special thanks to EERI staff particularly Eloise and Gab





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WELCOME TO THE EARTHQUAKE ENGINEERING SIMULATION GROUP AT CALTECH



The earthquake engineering simulation group, led by Prof. Dhanraj Kumar, pursues fundamental research in earthquake engineering with applications to wide-scale simulation of earthquakes and structural response using high performance computing. Our research involves a variety of methods for simulating the earthquake process, starting with fault rupture generation and propagation of seismic waves to a site(s) of interest, and shaking of the target, together with the structural response, including collection, reduction, and extraction of the forces due to damage, and the associated need for reconstruction of the true usage. Visit the [EESG](#) website for an example of such a simulation.

Prospective students: You are welcome to seek our advice, but please note that Prof. Krishna is generally unable to reply due to the high volume of correspondence received. All applications to graduate studies are reviewed by a committee and [admissions](#) are made on a competitive basis.

About Dr. Krishna

Sanjiv Kumar Krishna is an Associate Professor of Civ. Engineering and Supervisor of Caltech's Civil Structural Engineer specializing in earthquake engineering. Visit Dr. Krishna's [PERSONAL PAGE](#) for more information: <http://kkrna@berkeley.edu> for show.





THE EARTHQUAKE ENGINEERING SIMULATION GROUP AT CALTECH
SIMULATION OF EARTHQUAKES AND STRUCTURE RESPONSE



The screenshot shows a software interface for earthquake simulation. On the left is a file browser with the following structure:

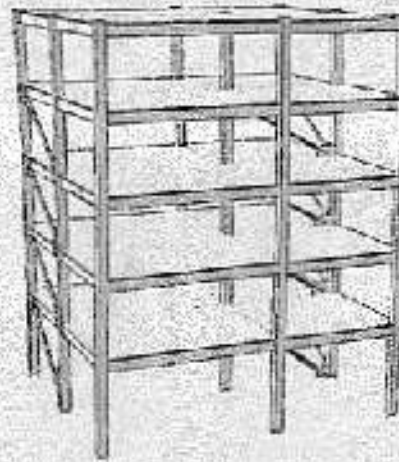
- ▶ Ground motion
- ▼ Tall building response
 - ▶ Thousand Oaks
 - ▶ Northridge
 - ▶ West Los Angeles
 - ▶ Downtown Los Angeles
 - ▶ Baldwin Park
 - ▶ Anaheim
 - ▶ Long Beach
 - ▶ Santa Ana
- ▶ Kaitia: Round L-shaped frame
- ▶ 6-Story L-Shaped dual cycle
- ▶ Benchmark structure for code
- ▶ Tall (19-story) irregular steel
- ▶ ShakeC... (Boeing Co. Mag. II)

The main simulation window displays two building models. The top model is orange and labeled 'Theoretical MDOF'. It includes a 3D view of the building and several time-series plots for 'Floor 1', 'Floor 2', 'Floor 3', 'Floor 4', and 'Floor 5'. The bottom model is yellow and labeled 'Rigidly-Blocky'. It also includes a 3D view and time-series plots for 'Floor 1' through 'Floor 5'. To the right of the 3D views are response spectra plots for each floor. A control bar at the bottom features play, stop, and volume icons, along with numerical readouts for '0.00 0.00' and '0.00 0.00'.



**3-Dimensional Dynamic
Analysis of 5-Story BRBF:
Modeling Methods and Results**

by
**G.S. Prinz
P.W. Richards**



*Brigham Young University,
Dept. of Civil and Environmental Engineering*



Notas acerca del
Diseño Sísmorresistente para casas de
1 y 2 pisos



Ing. Luis Gonzalo Mejía C.

Notas acerca del
Diseño Sísmorresistente para casas de
1 y 2 pisos



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2009 Results

1. *California Institute of Technology's Earthquake Engineering Simulation Group – presented to Prof. Swami Krishnan*
2. *Brigham Young University, G.S. Prinz and P.W. Richards*
3. *Luis Gonzalo Mejia C., Structural Engineer, Medellin-Colombia*



Thank You



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