



UNIVERSIDAD TECNICA
FEDERICO SANTA MARIA
Departamento de Obras Civiles

**SE INVITA A LA COMUNIDAD UNIVERSITARIA
Casa Central**

**CHARLA
POSTULANTE AL CARGO ACADEMICO
PARA EL DEPARTAMENTO DE OBRAS CIVILES**

EXPONE:

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**PhD Civil and Environmental Engineering, Structural Engineering and Geomechanics, Stanford University
Último trabajo: Postdoctoral scholar, Stanford University**

In the two decades, the performance-based earthquake engineering framework developed by the Pacific Earthquake Engineering Research Center, also referred to as the PEER PBEE framework, has gained much attention from researchers and practitioners in most seismic-prone countries. The main goal of the PEER PBEE framework is to facilitate rational decision making for risk management strategies and have structures with acceptable seismic performance. This goal was originally focused on individual structures under seismic hazards. However, earthquakes, particularly large-magnitude events, strike large regions and when occurring near large urban areas they may disrupt communities with thousands or even millions of structures and infrastructure networks. Hence, the concept of "performance" in PBEE needs to be expanded from an individual to a regional scale, with broader definitions of stakeholders and performance metrics. My research is a step forward in this direction, proposing improved fully-probabilistic PBEE-based methodologies for regional seismic risk assessment. In particular, my PhD dissertation extended the PEER PBEE framework in order to apply it on a regional scale for estimating the number of damaged houses with restricted post-earthquake occupancy and therefore estimating the number of displaced families. Within the proposed probabilistic framework, alternative public policies can be compared and evaluated in terms of their resulting regional seismic risk mitigation. Finally, my dissertation opens a discussion on the need for a change of paradigm in seismic design. Although we have historically designed structures individually, earthquakes strike large regions, disrupting communities with thousands or even millions of structures, infrastructure networks, and complex interactions. Therefore, a more rational seismic design approach is warranted, taking into account the potential consequences of failure due to earthquakes on a regional scale. In the last six months, I have applied the proposed framework for regional seismic risk assessment to different case studies.

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HORA INICIO: 14:00 Hrs.

SALA: C-300 DEPTO. OCCC

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