CalGeo
The California Geotechnical Engineering Association

Fall Campus Series (UCLA) & So Cal Regional Meeting

REGISTER NOW

Members	$100
Non-Members	$150

Early Reg Price Ends Oct 11

Friday, November 1 | 6:00-8:00 PM

University of California, LA — Mong Auditorium
404 Westwood Blvd Los Angeles, CA 90095

Seismic Earth Pressures, an Alternative to the Mononobe-Okabe Method

6:00 PM Food, Social, Posters (Member Option)

7:00 PM Presentation by Dr. Scott Brandenberg, PhD, PE

Net Proceeds Benefit Student Development

Scott Brandenberg, PhD, PE
UCLA Professor, Department of Civil & Environmental Engineering

Seismic earth pressures acting on free-standing retaining walls and building basement walls are traditionally analyzed using limit equilibrium procedures in which a constant body force is imposed on an active wedge (i.e., the Mononobe-Okabe method). However, as design ground motions have increased, the M-O method has become intractable because it predicts either very large earth pressures or imaginary numbers. This contrasts the observation that retaining walls and basement walls tend to perform well during earthquakes. Critically, the M-O method does not account for soil-structure interaction effects that drive seismic earth pressures. Earth pressure increments arise from relative displacement between the free-field soil and the wall, which are influenced by wall flexibility, soil heterogeneity, and ground motion frequency content, none of which are considered in the M-O method. Scott will discuss a design procedure rooted in soil-structure interaction theory that accounts for these factors and provides improved seismic earth pressure estimates. The procedure is currently a Part 3 Resource Paper in the *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures*.