

SPRING CAMPUS SERIES (UCSD) & So CAL REGIONAL MEETING

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| Members | \$90 |
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| Early Reg Price Ends Jan 23 | |

MONDAY, FEBRUARY 3 | 6:00-8:00 PM

UCSD - FRANKLIN ANTONIO HALL 4201

3180 VOIGT DR. LA JOLLA, CA 92093*

***USE HOPKINS PARKING STRUCTURE**

TIRE DERIVED AGGREGATE AS A LIGHTWEIGHT FILL IN STATIC AND SEISMIC GEOTECHNICAL APPLICATIONS

6:00 PM FOOD, SOCIAL, POSTER PRESENTATIONS BY FIRMS

7:00 PM PRESENTATION BY JOHN S. MCCARTNEY, PHD, PE, FASCE

NET PROCEEDS BENEFIT STUDENT DEVELOPMENT



JOHN S. MCCARTNEY, PHD, PE, FASCE
Professor & Hal Sorenson Endowed Chair
Department of Structural Engineering

This presentation will focus on the reuse of shredded tires with large particle sizes as an alternative lightweight backfill material in different geotechnical applications. Tire derived aggregates (TDA) have the advantages of low unit weight, high shear strength, and high damping ratio, although they may be more compressible than most backfill soils. After summarizing the properties of TDA with large particle sizes from a comprehensive laboratory testing program using large-scale tests, including internal shear strength, interface shear strength with different soils and concrete, pullout of geosynthetic reinforcements, cyclic shearing, and uniaxial compression, four applications of TDA will be discussed. The first application will focus on the development of Mechanically Stabilized TDA (MSTDA) retaining walls, with details from a case history near Santa Barbara. The second application will focus on the bearing capacity of concrete footings embedded in TDA and whether conventional bearing capacity equations can be used for prediction. The third application will focus on the use of TDA layers to provide seismic isolation to shallow foundations using shake table tests to understand the kinematic response. Finally, the fourth application will focus on the use of TDA as a compressible layer to mitigate the effects of lateral spreading on bridge foundations. The presentation will conclude with the path forward to using this material more widely in geotechnical engineering practice.