

**Department of Structural Engineering  
University of California, San Diego  
SE 290 Seminar**



Professor Julio Valdes  
Distinguished Professor of Civil, Construction, and Environmental  
Engineering San Diego State University

**"Heat-Induced Polymeric Soil Bonding: Experimental Studies"**

Wednesday, April 18, 2018

12:00 pm - 12:50 pm, Center Hall, Room 214

<https://structures.ucsd.edu/seminars>

## **Abstract**

A novel cementation technology whereby moist soil and added thermoplastic polymer particles are mixed, heated, and allowed to cool, enables healable, polymeric bonding of the soil grains. Experimental results show that the strength of the resulting material is dependent on polymer content, soil gradation and mineralogy, surface roughness, and relative particle sizes. The relatively low temperatures needed for bonding translate to the possibility of utilizing nonstandard techniques to impose heating.

## **Biography**

Julio Valdes is a Distinguished Professor of Civil, Construction, and Environmental Engineering at San Diego State University. In 2002 he earned a PhD degree in Civil and Environmental Engineering from the Georgia Institute of Technology, and was hired that year as a faculty member at SDSU. Dr. Valdes' scholarship focuses on understanding the mechanisms that govern the behavior of particulate materials, with emphasis on soils and aggregates. His group uses experimental techniques to identify emergent phenomena

and processes, knowledge of which are utilized to develop innovative techniques for the evaluation and control of particulate media systems.

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*Sponsored by Professor John McCartney  
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