MUREP Small Business Technology Transfer (M-STTR) Planning Grants

Title: Lunar concrete for additive manufacturing using locally available resources on the Moon

Institution: Texas State University

City/State: San Marcos, Texas

PI: Xijun Shi, Ph.D., P.E., M. ASCE

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SUMMARY:
The overarching goal of the M-STTR proposal is to position the Minority Serving Institution (MSI)/Small Business Concern (SBC) research team to compete for funding to research and develop lunar concrete materials using locally available resources for additive manufacturing.

Construction and operation of a lunar base requires convergent research involving material engineering, construction sciences, and social sciences disciplines. One of the first challenges of future lunar base construction is the development of appropriate materials that can be readily produced on the Moon in a large quantity.

The primary benefit of 3D printing technology for lunar concrete structures - as opposed to traditional methods - is that 3D printing is more efficient and enables construction automation with building blocks fabricated as designed. This significantly decreases the amount of time the astronauts would spend doing manual labor.