

Special Lecture by

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Laboratory Simulations of Impacts and Earth to Super-Earth Interiors by Dynamic Compression

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followed by MAT-X Lightning Workshop

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Abstract: Experimental access to materials at extreme (> terapascal) pressures is achievable through dynamic compression techniques. I will present examples of studies coupling laser-based dynamic compression with *in situ* X-ray diffraction, which together provide unprecedented access to the structure of materials during dynamic loading. From determining the structure of cores of large extrasolar planets, to interpreting the dynamic history of minerals found at meteor impact craters, our scientific goals require the knowledge of material behavior as a function of both pressure and time.