



# Relativistic Laser Plasma Interaction

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Ultra-intense short pulse lasers can heat targets so quickly that the electronic system becomes relativistic while the target remains near solid density. The resulting state of matter is fascinating, useful, and studied worldwide. In addition to physical experiments, the particle-in-cell (PIC) simulation technique is needed to explore microscopic interactions and aid in the creation of theoretical descriptions. In this talk, I will discuss my PIC simulations based on an experimental run at the OSU Scarlet laser facility. The simulations use a novel pump-probe design to study the phenomenon known as relativistic transparency where an opaque target becomes partially transparent due to the relativistic mass increase of the electrons.

**Tuesday, October 19**

**11:00 a.m.**

**Taylor 111**