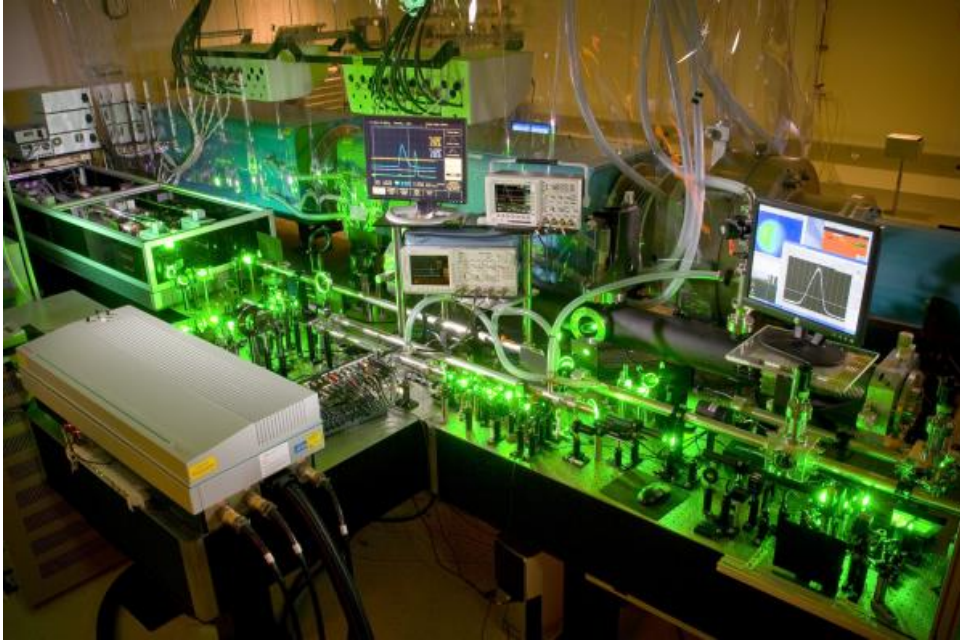


COLLOQUIUM



Dr. In Tai Kim Fresno State

Laboratory Astrophysics with High Intensity Lasers

Abstract

With a focused light intensity on the order of 10^{19} W/cm², multi-terawatt tabletop lasers are used to create extreme conditions in the laboratory and study the interaction of ultra-intense light with matter. In this talk, I will discuss current research in laser-driven blast waves and its application to astrophysics.

Astrophysical shocks play an important role in the evolution of the interstellar medium (ISM) and contribute to phenomena such as stellar formation. If the ISM is sufficiently dense, radiation may also play an important role in the dynamics of the blast wave resulting from supernovae remnants. Because of its importance in astrophysical systems, there is a strong motivation to investigate radiative blast waves.

To produce blast waves in the laboratory, we irradiate a gas of atomic clusters with ultra-intense laser pulses. Due to their high absorption efficiency of laser light, these clusters will form a hot plasma filament which subsequently develops into a cylindrical shock.

3:00 p.m. - 4:30 pm, Friday, April 22nd,
In-Person: McLane 162