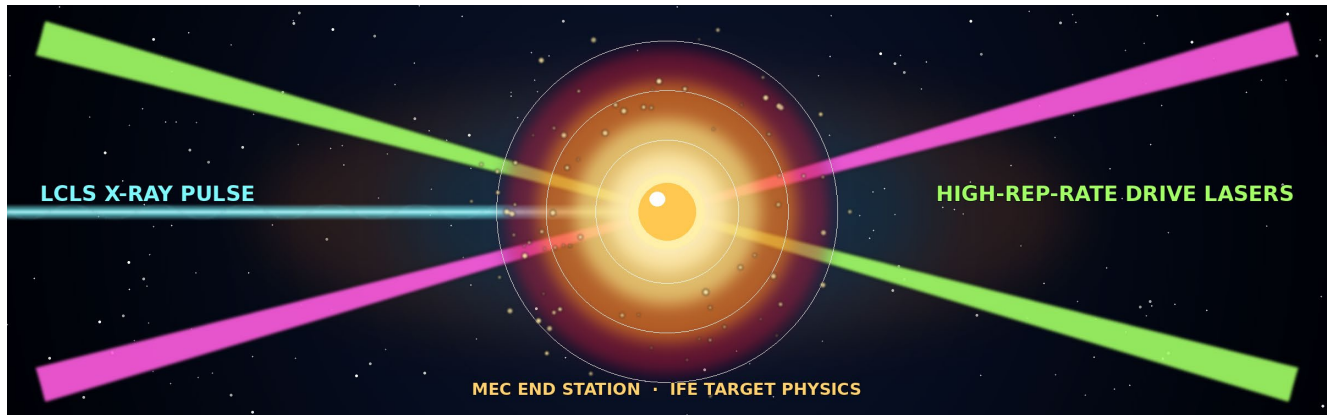


# IFE@SLAC WORKSHOP

*Advancing Inertial Fusion Energy with the LCLS & MEC End-Station*

**August 24–25, 2026** · SLAC National Accelerator Laboratory · Kavli Auditorium



The **IFE@SLAC Workshop** will convene leaders from DOE Fusion Energy Sciences, the private inertial fusion energy sector, national laboratories, and academia to define the scientific and technical drivers for advancing the Matter in Extreme Conditions (MEC) end-station at LCLS as a national platform for fusion energy research. Outcomes will inform a community-aligned vision for an upgraded MEC capability that integrates high-energy, high-rep-rate laser drivers with LCLS diagnostics, enabling precision measurements of plasmas and materials behavior under fusion power-plant-relevant conditions. Discussions will articulate SLAC’s role as a national platform for high-fidelity, high-throughput IFE science, balancing scientific ambition with realistic projections for laser, diagnostic, and target-delivery technology.

## Workshop Goals

- 1) Connect SLAC with the IFE community to address gaps in the DOE Fusion Energy Roadmap.
- 2) Prioritize high-impact IFE science drivers where MEC + LCLS uniquely enable validation of target physics and laser–target coupling.
- 3) Build consensus on MEC-enabled measurements for advancing state-of-the-art modeling and simulation.
- 4) Align the laser technology roadmap with credible 5-year projections.
- 5) Establish a pathway toward a future CD-0 proposal for MEC upgrades supporting the SLAC Synchronized Brilliance HEDS&T strategy.

## Draft Agenda

**Aug 24 (Day 1)** — Plenary keynote on Basic Research Needs for IFE, IFE Science at XFELs (MEC capabilities), four lightning talks, and parallel deep-dive breakouts on (I) Equation of State, (II) Fusion Structural Materials, (III) Hydrodynamics & Fuel Layers, and (IV) Target–Laser Engagement. SLAC-hosted dinner offsite.

**Aug 25 (Day 2)** — IFE private-industry perspectives panel, MEC upgrade paths and drive-laser projections, breakout synthesis with PROs, community-led prioritization of flagship engagement areas, and closing remarks. Optional MEC tours follow.

**Organizers:** Arianna Gleason (Chair), Alan Fry, Mianzhen Mo · **Venue:** SLAC - Kavli Auditorium, Menlo Park, CA