

Ghost Reactor: Photon-Core Energy & Propulsion System

Executive Summary

Ghost Reactor is a revolutionary dual-mode fission power system built for deep space. It emits photons directly from a hot core for propulsion, and uses thermophotovoltaic (TPV) arrays to convert heat to electricity. A molten lead loop captures remaining thermal waste for auxiliary power. It powers both ion thrusters and a continuous photonic drive. With no moving parts in the primary loop and near-infinite Isp, it offers unmatched mission flexibility, endurance, and safety. This is a leap forward for deep space exploration, Mars missions, and interstellar precursors.

Propulsion Capabilities

- Photon Drive: Infinite specific impulse (Isp ~30M sec), continuous low-thrust acceleration using directed radiation
- Ion Drive: High thrust from TPV electric output, ~0.02 N/kW performance with >3000 sec Isp
- Molten lead loop: Handles waste heat, powers backup systems, ensures passive safety
- Fuel Burn Model: U-235 core lasts 10+ years depending on duty cycle and output level

Applications

- Deep space scientific probes
- Manned Mars missions
- Lunar power stations
- Interstellar precursor probes
- Orbital tugs or planetary cargo haulers

Contact

Developed in Ghost Energy Lab simulations.

Open for collaboration.

Reach out for partnership, research, or mission design inquiries.