System Performance

**Photovoltaics (PV)**
- Radiation source: Sun
- Type of radiation: Shorter wavelengths
- Typical band gap of cell: 1.14 eV (Silicon)
- Other applications: Waste heat recovery

**Thermophotovoltaics (TPV)**
- Radiation source: Terrestrial source
- Type of radiation: Longer wavelengths
- Typical band gap of cell: 0.726 eV (Gallium antimonide)
- Other applications: Waste heat recovery

**Theoretical maximum efficiency**
- Photovoltaics (PV): 41%
- Thermophotovoltaics (TPV): 85%

**In the lab**
- Solar Concentrator
- Cooling System

**Outside of the lab**
- Solar Concentrator
- Intermediate Layer
- TPV Cell

**Project Goals**

**Overall goal:** Build a self-contained thermophotovoltaic device
- Maintain the required temperature difference between emitter and cell
- Maintain a view factor of at least 0.5

**Subgoal:** Use the sun as the heat source.

**Scope:** Focus on solving the problem of maintaining the temperature difference between emitter and cell in a TPV system operating outside of the lab