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**Thursday, February 17th**

**9:00 AM—ME2054**

**WebEx Link: <https://bit.ly/tervo-2-17-22>**

**Passcode: BoilerUp22**

## Electricity from Heat & Light with Thermophotovoltaic & Thermoradiative Cells

### Abstract:

Solid-state heat engines offer several advantages over their traditional mechanical counterparts via compact size, quiet operation, no moving parts, and scalability. However, current commercial devices such as thermoelectrics suffer from low efficiency and challenges to further improvements. In this seminar, a different class of solid-state heat engines that utilize thermal radiation will be described. These include thermophotovoltaics, where photons from a thermal emitter are converted to electricity by a photovoltaic cell, and thermoradiative devices, where thermally driven radiative recombination in a hot photovoltaic cell provides useful electric power. Recent results for these devices will be presented, including novel modeling techniques, epitaxial semiconductor growth, and the fabrication and testing of record-efficiency devices.

### Biography:

Eric Tervo is the Nozik Postdoctoral Fellow at the National Renewable Energy Laboratory. His research interests include applications of heat and charge transfer to energy technologies, nanoscale thermal radiation, and energy policy and economics. Prior to working at NREL, Eric completed his doctorate at the Georgia Institute of Technology and worked as an engineer at Southwest Research Institute.