



Thermoelectricity

The production of electricity using Seebeck generators (or thermoelectric generators) is a very active area of research. These generators are usually composed of a set of p-n junctions and directly convert heat flux into electricity. Consequently, they require only the presence of a temperature gradient to function.

The aim of our research, carried out in partnership with two researchers from the SIAME laboratory of the UPPA, is to explore strategies, using an "energy" approach, for integrating thermoelectric generators into end-user defined systems. This approach is based on a system model of the power generation chain from "lost" heat sources to electrical energy storage. The LaTEP focuses in particular on the optimization of heat transfers in the thermoelectric system.

There are a wide range of applications, but optimization of these thermoelectric generators was initiated to generate electricity for embedded systems in aeronautics (use of helicopter refueling nozzles) on the one hand and for developing countries (integration into a multifunction wood-burning oven) on the other.