

Abstract Submitted
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Heat to Electricity using Thermoacoustics IVAN RODRIGUEZ, University of Utah Department of Physics, OREST SYMKO, University of Utah Department of Physics — In the thermoacoustic effect, sound can be generated when heat is injected to a section of an acoustic resonator; this sound can be converted to electricity using a piezoelectric element. The driving force is the temperature gradient in the resonator. Such approach is presented here for converting heat or waste heat to electricity. The device operates at 2kHz with air at one atmosphere as working fluid. The threshold for oscillations is at a temperature difference of 90 ° C when heat is injected to the hot heat exchanger. For a temperature difference of 140 ° C, the generated electrical voltage output at the piezo open circuit is 10Vrms or higher. The device shows much promise for energy conversion with efficiency which is a sizable fraction of Carnot.

Orest Symko
University of Utah

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