

ABSTRACT

ADVANCED THERMOELECTRIC MATERIALS AND DEVICES FOR ENERGY CONVERSION

By
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This talk will focus on the recent advances made in thermoelectric materials and devices, particularly at JPL, with an emphasis on power generation. Thermoelectric materials convert heat directly into electrical power. New thermoelectric materials, particularly the skutterudites and zinc antimonide developed at JPL, have higher figure of merit and therefore higher conversion efficiency than state of the art materials. These materials, when combined into a segmented thermocouple can achieve 15 % conversion efficiency from temperature gradients found in automobile exhaust. New concepts for power generation utilizing automotive or other sources of waste heat, and space applications, will be discussed.

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