
TCSUH Special Seminar

Development of high temperature thermoelectric modules and its applications using half-Heusler Materials

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Room 102

12:00 noon – 1:00 p.m.

ABSTRACT:

In the past years, high temperature thermoelectric module gained great attention worldwide because of its potential application for middle (~ 450 °C) or high-temperature (> 600 °C) thermoelectric power generation or waste recovery. In the past, we successfully improved the overall ZT by 40% through nano-structure approach. In this presentation, we show the development of a complete solution for packaged Half-Heusler modules for various industry applications. Both theoretical and experimental data support that we successfully fabricated and packaged a module with 2 W/cm^2 power density under 600-100 thermal gradient. Several system level demonstrations for typical applications will be presented as well.

BIO:

Dr. Wang is the Chief Technology Officer of APower Inc. His expertise covers all aspects of thermoelectric related technologies, including material fabrication and characterizations, module design and fabrication, module packaging, power generation system design, and product implementation in real commercialization applications. Prior to joining APower, Inc., Dr. Wang was the manager of device development at GMZ Energy. He was the key technical personnel at GMZ energy. He successfully developed the world first half-Heusler module. He has published more than 20 scientific papers in peer-reviewed journals and is listed as an inventor on seven patents related to thermoelectric materials, devices, and system.

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