



Birck Nanotechnology Center Distinguished Seminar



Opportunities, limitations and challenges to the broad commercialization of Thermoelectric technology

Lon Bell

CEO Ideal Power Inc. and Co-founder Gentherm and CALSTART

Thursday, October 24th, 2019

11:00am in MRGN 121

Bio: Currently, Dr. Bell is engaged with several emerging, technology driven companies that are characterized by the potential to have global economic impact, address long term societal needs and create strong IP positions.

Bell is also a Chair of the External Advisory Board for the California Institute of Technology's Department of Mechanical and Civil Engineering.

Bell founded Amerigon in 1991 (now Gentherm, NASDAQ: THRM). Gentherm is a \$1B global leader in supplying high quality thermal management products to the automotive and commercial markets. Gentherm's automotive products include climate seats that provide both heating and cooling, EV battery thermal management systems, heated steering wheels, and heated and cooled storage bins.

In 1991, Bell was a cofounder of CALSTART and its first president. CALSTART is a California based non-profit member-supported organization of more than 140 firms, fleets and agencies dedicated to supporting a growing high-tech, clean transportation industry with goals to help clean the air, create jobs, cut imported oil and reduce global warming emissions. As a founder and its first president, Bell led CALSTART's formation and initiated the process of transferring green aerospace technologies into the transportation sector.

Bell served as a member of the Scientific Advisory Board at Michigan State University's Energy Frontier Research Center, a multi-university consortium conducting fundamental research in solid state energy conversion technologies. He served in a similar role for the University of California at Santa Barbara's Institute for Energy Efficiency.

He has authored more than 40 publications in the areas of thermodynamics of thermoelectric systems, automotive crash sensors, and other electronic and electromechanical devices. He has been granted over 100 patents for his inventions. Five clusters of Bell's inventions have gone into mass production and dominated their target markets, generating over two billion US Dollars in sales.

Bell received a bachelor's degree in Mathematics in 1962, a Master's degree in Rocket Propulsion in 1963, and a Ph.D. in Mechanical Engineering in 1968, all from the California Institute of Technology.

Abstract: Thermoelectric systems hold the promise of solid state heating, cooling and electric power generation without any greenhouse gas emissions or mechanical moving parts. Despite these very attractive features the technology has not been broadly adopted. This talk explores the state of thermoelectrics in light of materials and systems currently available, material properties, design and usage criteria and concludes with prospects for future broader commercialization.