

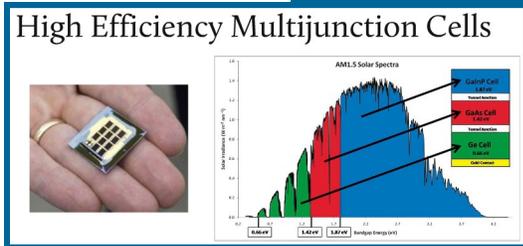
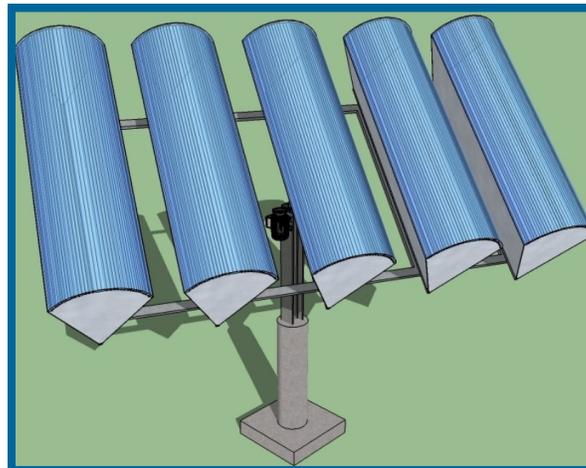
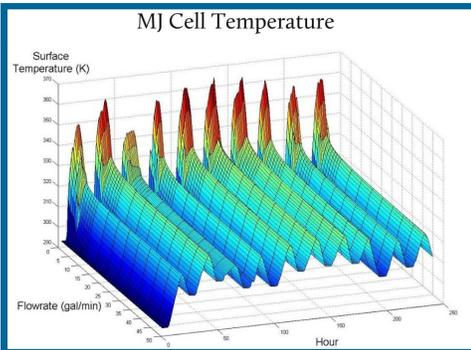


Interdisciplinary collaboration between engineering, mathematics and science

# SEMS Research Highlights

## Simulation-Based Energy Analysis of a Linear Concentrating Photovoltaic System

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This newsletter presents the research conducted within the School of Engineering, Mathematics and Science (SEMS) at Robert Morris University (RMU). It covers various relevant topics including: interdisciplinary efforts, successful research grants, student research, posters and papers, journal publications, presentations at national and international conferences, contribution to professional societies, STEM educational research, industrial consulting collabora-

**A Linear Concentrating Photovoltaic (LCPV) System** consists of a concentrating lens, a strip of high efficiency photovoltaic cells and a cooling water channel. The photovoltaic cells are called multi-junction (MJ) solar cells and they are capable of absorbing a larger portion of the solar

spectrum when compared to traditional silicon cells. These MJ cells can reach efficiencies as high as 42.6%, more than double the efficiency of silicon cells. The cooling water channel not only cools the cells to maintain a high efficiency, but the waste heat from the solar energy is

absorbed and can be used as a hot water source for a home or commercial building. Although a new technology concentrating PV will play an important role in future solar energy systems. Efforts are underway at RMU to build and test a LCPV system to validate the proposed solar energy-capture simulation model.



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