

# **CSU PHYSICS COLLOQUIUM**

**“High-Efficiency Thin-Film CdTe Solar Cells”**

**Jim Sites**

**Colorado State University**

Monday Nov. 18th at 4:00pm

120 Engineering (Hammond Auditorium)

## **Abstract**

Following an introduction summarizing the recent growth and favorable economics of photovoltaic-generated electricity, the talk will describe the evolving structure of thin-film solar cells based on CdTe and its alloys. The primary focus will be on recent contributions to solar-cell performance from the Colorado State program, and the talk will present experimental data in the context of the band-diagram features that have facilitated the progress towards higher efficiencies. This progress includes a low-recombination diode-emitter layer, a two-layer CdSeTe/CdTe absorber that increases current while preserving voltage, and a more effective back contact.

## **Biography**

Jim Sites studies the device physics of low-cost CdTe and CIGS thin-film solar cells. He received his PhD from Cornell in 1969 and has been on the Colorado State faculty since 1971. His photovoltaics lab makes precision electrical and optical measurements on thin-film solar cells, primarily CdTe, that are fabricated at Colorado State and by partners in the U.S. and abroad. The goals of his laboratory are to separate the various solar-cell losses, to explain the losses on a fundamental basis, to make numerical simulations when appropriate, and to suggest strategies for improved solar-cell performance.