

Mechanical Engineering Lecture in Energy

Is Silicon the Ultimate Photovoltaic Material?



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Photovoltaic (PV) Solar Energy has experienced a tremendous growth in the last decade, becoming already competitive in certain scenarios. Silicon technology dominates the PV market, although other approaches are gaining momentum and aspire to challenge its position. Having demonstrated impressive progress in performance and cost at the industrial level in the last years, the question is whether there is still room for improvement in silicon technology, or on the contrary the future will be for the alternative technologies. In this talk I will give an overview of the silicon value chain, describing its weaknesses and strengths and pointing out some key areas of research. I will present some of the results of our research in the reduction of the energy consumption during silicon deposition, in the assessment of the potential of alternative silicon substrates, and in the proposal of silicon-based tandem solar cells. Hopefully they will show that silicon for solar still deserves R&D efforts, to push the technology forward and keep it alive and kicking.

Refreshments will be served before the seminar.

Please contact Tony Pulsone at pulsone@mit.edu with any questions.