



## CdTe Workshop Day 1 Agenda

8:00 am - 8:30 am	Arrival	
8:30 am - 10:00 am	<b>Progress, Possibilities, and Challenges</b>	
	Gang Xiong	Collaboration to achieve 25%: why and how
	Wyatt Metzger	Stepping up our game: progress and challenges in synthesis and characterization
	Sachit Grover	Challenges and possible pathways to 25% CdTe cell efficiency
	Adam Phillips	Back buffer requirements for high efficiency
	Kurt Barth	CdTe and CdSeTe device processing strategies and characterization to increase performance
	Inna Kozinsky	The need for shared and effective metrics to gauge the progress in CdTe PV
10:15 am - 11:45 am	<b>Advanced characterization</b>	
	Jim Sites	What key information can straightforward PL provide?
	Darius Kuciauskas	Interface and bulk recombination in CdSeTe heterostructures and devices
	Zach Holman	Measuring implied current-voltage curves of Cd(Se)Te solar cells
	Yanfa Yan	Impedance spectroscopy analysis of CdTe thin-film solar cells
	Robert Klie	Characterization of interfacial co-passivation using STEM
	Michael Walls	Understanding CdTe/CdSeTe device performance using high resolution electron and ion optical techniques
11:45 am - 12:30 pm	Lunch	On site, sponsored by Colorado State University
12:30 pm - 2:00 pm	<b>Interfaces</b>	
	Stuart Irvine	Transparent back contacts – optimising the energy output of a CdTe solar cell
	Tom Myers	An investigation of PbTe and SnTe for back-side p-type contact materials
	Micheal Heben	Experimental Development of High Performance CdTe Back Contacts
	Bill Huber	Investigating whether strain and/or lattice mismatch affect CdZnTe alloy-based back contact performance
	Colin Wolden	Understanding the Oxide-Absorber Interface
	Craig Perkins	Analysis of front interfaces in CdTe devices by advanced electron spectroscopic methods
2:15 pm - 4:00 pm	<b>Absorber and Module Development</b>	
	W. Sampath	Advances in processing CdTe devices and DFT simulations
	Michael Scarpulla	Fundamentals of As doping and lifetime in CdTe from bulk crystals
	Kelvin Lynn	Optimization of group V doped feedstock for high efficiency CdTe/CdSeTe thin film PV
	Yong-Hang Zhang	Epitaxial lift-off CdTe/MgCdTe double heterostructures for thin-film and flexible solar cells applications
	Heayoung Yoon	Design, fabrication, and characterizations of CdTe PERC structures
	Ray Hsiao	Electroplated CdSeTe solar modules at Reel Solar
	Al Compaan	Toledo Solar - vertical glass transport for high quality CdTe cells and modules
5:30 pm	Dinner	240 Union Restaurant, sponsored by First Solar

## Day 2 Agenda

8:15 am – 8:30 am	Arrival
8:30 am – 8:45 am	Breakout instructions
8:45 am – 10:15 am	Discuss and respond to questions corresponding to breakout session (see topics below)
10:15 am – 10:30 am	Break
10:30 am – 11:30 am	Report out and discussion
11:30 am – 12:15 pm	Lunch
12:15 pm – 1:15 pm	Complete breakout session deliverable
1:15 pm – 2:15 pm	Report out and discussion
2:15 pm – 2:30 pm	Wrap up
2:30 pm – 3:30 pm	Optional tour of NREL PV facilities

## Breakout Sessions

A. What are the top goals for the CdTe solar technology research community to reach 25% cell efficiency? Is there still a role for single crystal, MBE, and model systems, and if so how much of a role? Do we need more/less theory? How much should we weight GrV vs Cu work? How much should we weight interface, absorber, and integrated device studies? What are the top 3-5 technical issues to be addressed?

*Provide 1-3 final takes on how work should be weighted on each top technical issue determined above*

B. How can the CdTe community be better aligned in its work? How should we logistically attack these problems? How many laboratories should make polycrystalline devices from A to Z as opposed to focusing on one technical aspect (e.g. back contacts) leveraging materials from industry or elsewhere? How can collaboration be facilitated by DOE and industry given our constraints? What specific collaborations should be created that do not already exist?

*Provide 3-5 follow up action items to improve our alignment after this workshop*

C. Given the importance of CdTe in photovoltaics, what can we do to expand the relatively small and shrinking CdTe research community? What is useful and/or novel expertise that we are not using and should be? Who or what could change our capabilities for the better? How can we appeal to a broader funding base?

*Provide 3-5 follow up action items to improve CdTe funding and the community after this workshop*

D. What are visions for CdTe solar technology 15 years from now? What are the needed building blocks to get there? How will CdTe be differentiated from other technologies? What are key areas that need to be researched and developed? What is lacking in the current research portfolio to realize the long-term potential of CdTe solar technology?

*Provide 1-3 long term objectives for CdTe solar technology and steps to realize these objectives*