





Invitation

2nd Annual CdTe Device Workshop

November 1-2nd, 2018, at The University of Toledo, Ohio

Organized by First Solar, Colorado State University, and The University of Toledo,

Dear Colleagues,

Last year we held our first CdTe workshop in Santa Clara, CA, and the feedback we have received from the participants was overwhelmingly positive. A deeper technical interaction than what is usually achievable at conferences and the exclusive focus on CdTe made this a memorable and useful event. We as the organizers always envisioned this first workshop to be a beginning of a series of meetings, with the intention to initiate a closer research community, clearer definition of research needs, and identification of new opportunities for collaborative research.

In this spirit, it is our pleasure to invite you to the 2nd workshop to be hosted at The University of Toledo Campus. Randy Ellingson has volunteered to be our co-organizer and host for this year's event. The 2nd workshop will yet again be structured in two parts:

- 1. Day 1: Presentation of research results. Every primary participating organization is strongly encouraged to participate and present results.
- 2. Day 2: A discussion on research directions structured around the main themes of the problems (front interface, absorber, etc) and guided by short presentations of the participants. At least one short presentation from every organization is required. Where we have two or more PIs from the same organization, multiple submissions are strongly encouraged.

More details on the agenda will follow.

For the moment, plan and gister for participation following this link by 9/21/2018. This registration is required for everyone, included to the earlier inquiry. Provide A) Name, B) Day 1: Title or p

https://goo.gl/forms/mKPGsHhrv-zpg___6

This event is by invitation only; please do not forward this message. Similar to last year, we feel it is appropriate that Day 1 may have additional attendees, in particular, allowing locals to hear about new results and to interact with all of you. On day 2, we want to keep the group size limited.

Directions to the meeting site and agenda will be distributed later. Please follow instructions on the next page for hotel reservations.

Looking forward to a great workshop!

Markus Gloeckler, Jim Sites, Gang Xiong, and Randy Ellingson

Recommended Hotel

Hampton Inn and Suites, Toledo Westgate 3434 Secor Road Toledo, OH 43606 t: 419.214.5555 f: 419.214.5556 hampton.com

Workshop attendees wanting to stay at the Hampton Inn should call the hotel and ask for a reservation under the "University of Toledo CdTe Workshop". Amenities include free hot breakfast offered daily, free high-speed and Wireless Internet access in the lobby and all guestrooms, and Guests have the option to earn both HHonors points & airline miles.

The room rate is \$114 plus tax for a typical Oct. 31 arrival and Nov. 2 departure, and the hotel will give you the same rate if you want to add a night either before or after those dates. The standard King guest rooms have a King bed with a sleeper sofa and the standard doubles have two queen beds. There are King & Queen Suites available.

Event Location

Research and Technology Complex 1 "R1" 2600 Dorr St., Toledo, OH 43607 Campus Map: <u>https://www.utoledo.edu/campus/directions/pdfs/Main-Campus-Map.pdf</u>

Transportation

- Most practical airport is Detroit Metropolitan (DTW) approx. 1hr transportation
- Toledo Express (TOL) offers very few flights daily approx.
 20mins transportation
- <u>No local transportation is arranged, share rides or rely on</u> <u>Uber/Lyft, etc.</u>

Parking

Parking is allowed in Area 20 (see map) next to R1 Building. Anyone parking in Lot 33 in front of the R1 may be ticketed unless they register their vehicle details (year, make, model, color, license plate) with the R1 receptionist.

Meals

The University of Toledo is providing refreshments and lunches at the meeting venue. A group dinner is offered on Nov 1st, starting at or around 6pm and sponsored by First Solar, details to follow. **Please inform Randy Ellingson of any special dietary restrictions (randy.ellingson@utoledo.edu, 419.530.3874)**

Presentations

A presentation laptop will be available as well as a laser pointer. Attendees are strongly encouraged to bring presentation on a USB drive and upload presentations during breaks ahead of their assigned sessions.

Event Dinner (Update!)

<u>The Registry Bistro</u>, 144 N Superior St, Toledo, OH 43604, (419) 725-0444 Appetizers will be served at arrival time (6-6:30p), Parking nearby in a garage or street parking (<u>MAP</u>)

\$114 Group Rate is available until

October 16th





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	DAY 1: 15 min/presentation incl Q/A			
	Arrive	8:15 AM		15
T 14	Welcome	8:30 AM	Alterations	15
Fom Myers	Valence band offsets in CdTeSe alloys Comparison of CdSeTe and CdTe electronic properties	8:45 AM	Absorbers	15 15
Darius Kuciauskas		9:00 AM	Absorbers Absorbers	15
Adam Phillips Chris Ferekides	Towards a wide bandgap CdZnTe solar cell	9:15 AM 9:30 AM	Absorbers	15
	n-type CdTe Cells Characterization of Local Properties of Individual Grains and Their Interfaces	9:30 AM 9:45 AM	Absorbers	15
Heayoung Yoon Alessandro Romeo Michael Heben	Discussion/Buffer/Break	10:00 AM	Absorbers	30
	Wet deposition of Cu compound for the back contact of CdTe solar cells	10:30 AM	Contacts	15
	Towards a Passivated Back Surface		Contacts	15
/anfa Yan		10:45 AM 11:00 AM	Contacts	15
Anthew Reese	Characterization of the effects of CdTe back surface treatment on device performance	11:15 AM	Contacts	15
Matthew Reese Stuart J. C. Irvine	Revealing and Effecting Changes to Buried Interfaces			15
	Tuning the band offset of the HRT layer to increase Voc	11:30 AM	Contacts	15
	Discussion/Buffer/Break	11:45 AM		
		12:00 PM		60
Craig L. Perkins	Tin oxide-catalyzed production of ultrathin sulfur and tellurium oxide layers in high efficiency CdTe	1:00 PM	Contacts	15
Colin Wolden	Understanding buried interfaces	1:15 PM	Contacts	15
Kuo-Jui Hsiao	Electroplated CdTe Solar Module And Its Application	1:30 PM	Devices	15
l Compaan	Flexible CdTe minimodules on thin ceramic ribbon	1:45 PM	Devices	15
im Sites	Overview of CSU Cells	2:00 PM	Devices	15
Kurt Barth	Advances In Processing High Efficiency CdTe Devices	2:15 PM	Devices	15
	Discussion/Buffer/Break	2:30 PM		20
Dingyuan Lu	Sub-bandgap states in As-doped CdTe	2:50 PM	p-doping	15
lohn Moseley	Sub-bandgap states in As-doped CdTe cont'd	3:05 PM	p-doping	15
gor Sankin	Kinetic simulation of Cu doping in chlorinated CdSeTe absorbers	3:20 PM	p-doping	15
	Discussion/Buffer/Break	3:35 PM		20
Admin	Tour of University of Toledo facilities (2 Groups)	3:55 PM	Tour	60
Admin	End Of Day	4:55 PM		
Dinner	The Registry Bistro, Toledo	6:00 PM		
Dinner	The Registry Bistro, Toledo DAY 2: 10min/presentation Arrive	6:00 PM		15
	DAY 2: 10min/presentation	8:15 AM		
	DAY 2: 10min/presentation Arrive Purpose/Rules of the day	8:15 AM 8:30 AM	Welcome	15
	DAY 2: 10min/presentation Arrive Purpose/Rules of the day Fundamentals & Others	8:15 AM	Welcome	
	DAY 2: 10min/presentation Arrive Purpose/Rules of the day Fundamentals & Others Gang Xiong	8:15 AM 8:30 AM	Welcome	15
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