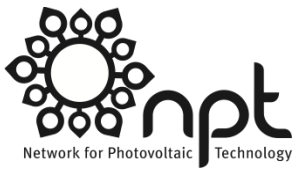
Purdue University, August 2-3, 2012

PURDUE UNIVERSITY

Challenges in PV Science, Technology, and Manufacturing:

A Workshop on the role of theory, modeling, and simulation



Welcome!

Thanks!

About this meeting…

General question:

"How can theory, modeling, and simulation be most effective in advancing PV science and technology?"

Specific questions:

- Key PV Successes during the last 10 years
- New challenges and opportunities for the next 10 years
- How can TMS address these challenges / realize the opportunities?
- Status of TMS in PV in your organization…
- About TMS…
- Is TMS a "pre-competitive activity"?
- Roles of academia, industry, and national labs?
- Emerging topics and priorities:
- **Goals for the next 10 years:**
- What R&D investment and implementation strategies would you suggest?
- What are the needs for scientific and technological infrastructure?

Meeting format:

- Five sessions, 15 min talks, 5 min Q&A, followed by a panel discussion.

- Five breakout sessions
  (Breakout leader, recorder, panel discussion)

- Quick wrap up

Breakout 0: broad issues ARMS 1021

B.J. Stanbery (leader) Ali Shakouri, (recorder) Steve Hillenius

Breakout 1: crystalline PV ARMS 1028

Bob Havemann (leader) Jeff Gray (recorder) Bill Tumas

Breakout 2: thin-film ARMS 1103

Oki Guanwan (leader), Peter Bermel (recorder) Rakesh Agrawal

Breakout 3: OPV ARMS 3109

Jim Yardley (leader) Bryan Boudouris (recorder) Jeff Neaton

Breakout 4: characterization ARMS 3115

David Ginley (leader), Ashraf Alam, (recorder) John Benner

Approach and Instructions

- There will be 1 breakout for each of the 5 sessions (#'s 0-4).
- Speakers in each session, the panel discussion that follows each session, and the breakout session itself should address the questions that follow – each from their perspective (e.g., broad perspectives, xtal, thin-film, OPV, characterization)
- The key people are the Breakout leader (moderator), the panel discussion leader, and the session recorder.
- We will have 90 minutes for the Breakout sessions – to refine the thoughts, impressions, recommendations from the relevant session and panel discussion.
- The final wrap-up will be a quick 10 minute summary by the Breakout leader.
- You are encouraged to **pre-fill this template** with input from the session and panel discussion and then use the breakout to refine that initial input.

Outcomes

1. A report to NSF summarizing the insights, observations, discussions, and recommendations.

2. A chance for each of you to think about TMS in your own work or that of your organization.

3. An opportunity to talk with some really bright and experiences people.

NCN and nanoHUB.org

Network for Computational Nanotechnology

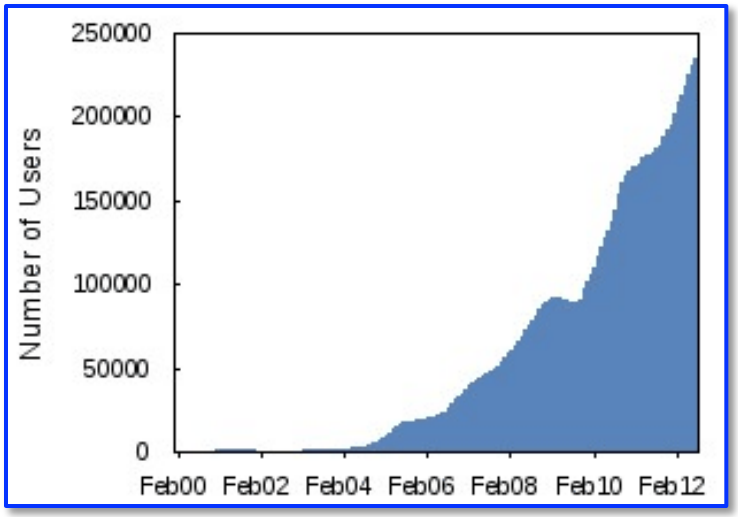
- NSF-funded infrastructure and research network
  -$30M NSF investment

- Driven by research and focused on:
  -moving nanoscience to nanotechnology
  -connecting disciplines/communities,
  exp./theory, science/eng

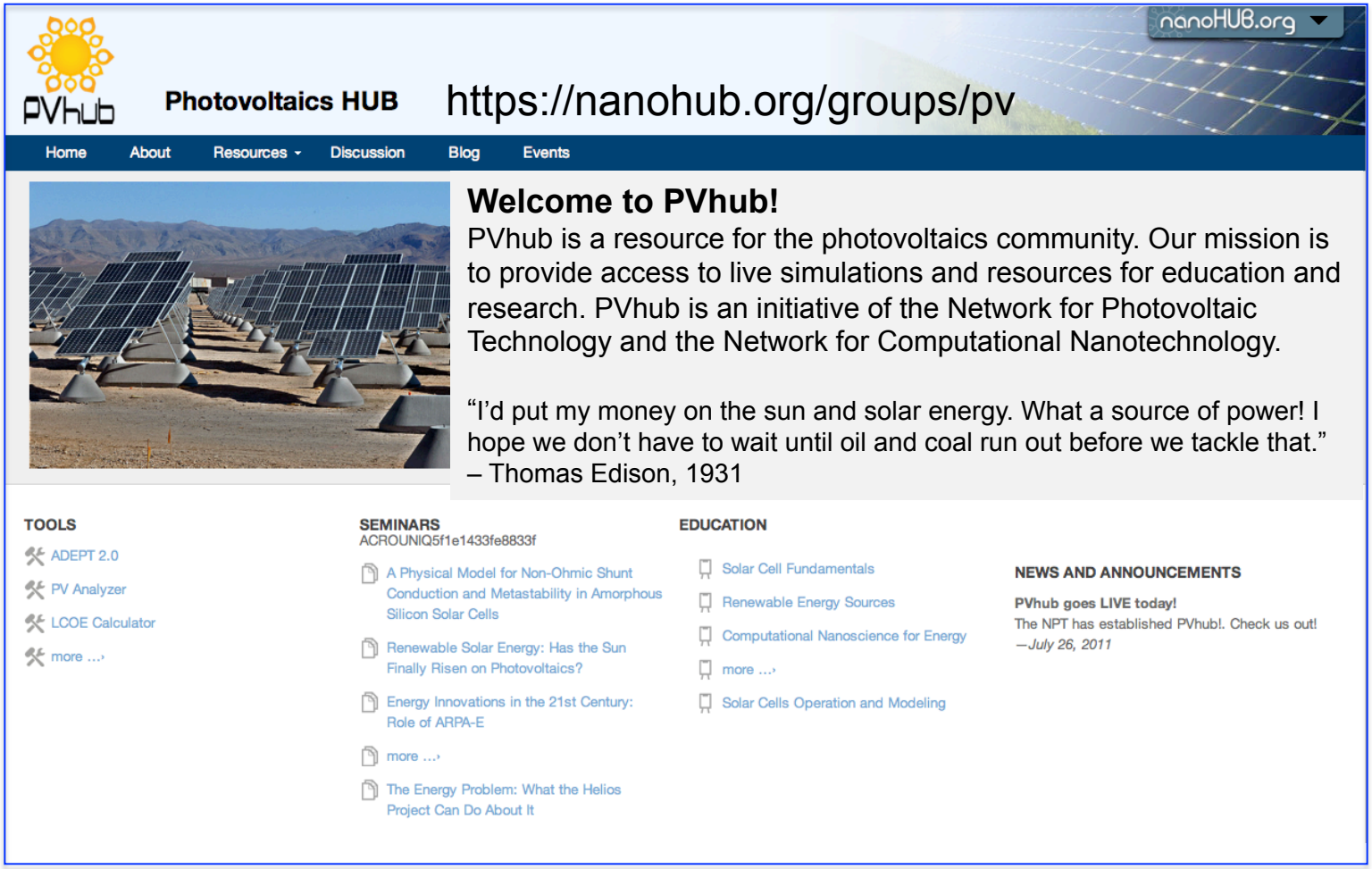
- Supported by nanoHUB
  -simulation (data),
  -education/training
  -tech transfer and collaboration

- > 11,000 simulation users/yr.
  > 500,000 simulations/yr.
  > 230,000 users per year

http://www.nanoHUB.org



PVHUB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Photovoltaics HUB
https://nanohub.org/groups/pv
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Resources
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Welcome to PVhub!
PVhub is a resource for the photovoltaics community. Our mission is to provide access to live simulations and resources for education and research. PVhub is an initiative of the Network for Photovoltaic Technology and the Network for Computational Nanotechnology.
"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."
– Thomas Edison, 1931
TOOLS
ADEPT 2.0
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LCOE Calculator
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The NPT has established PVhub!. Check us out!
—July 26, 2011