Nanoscale Hybrids Collaboration Meeting

Jan 21, 2025

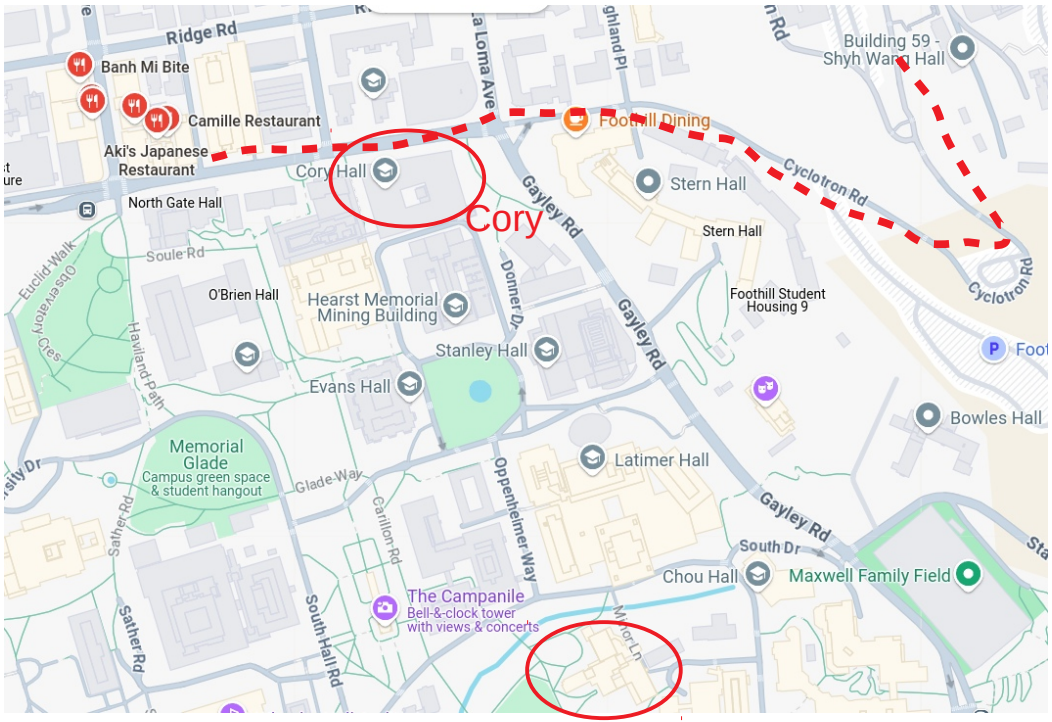
https://indico.physics.lbl.gov/event/3050/

Logistics

https://lbnl.zoom.us/j/96389202953

- Wifi visitor network is open
- Connect to zoom to share your slides
- Agenda and repository for slides using indico.physics.lbl.gov
  - Log in with your LBNL LDAP to upload your slides
  - Or send me your pdf and I will upload them
- Morning here, walk down the hill for lunch around North Gate
- Be at Cory 521 by 1:30pm for afternoon session
- Dinner at faculty club- last chance for any changes NOW- let me know asap

- In case of earthquake go outside after shaking stops



4-year award

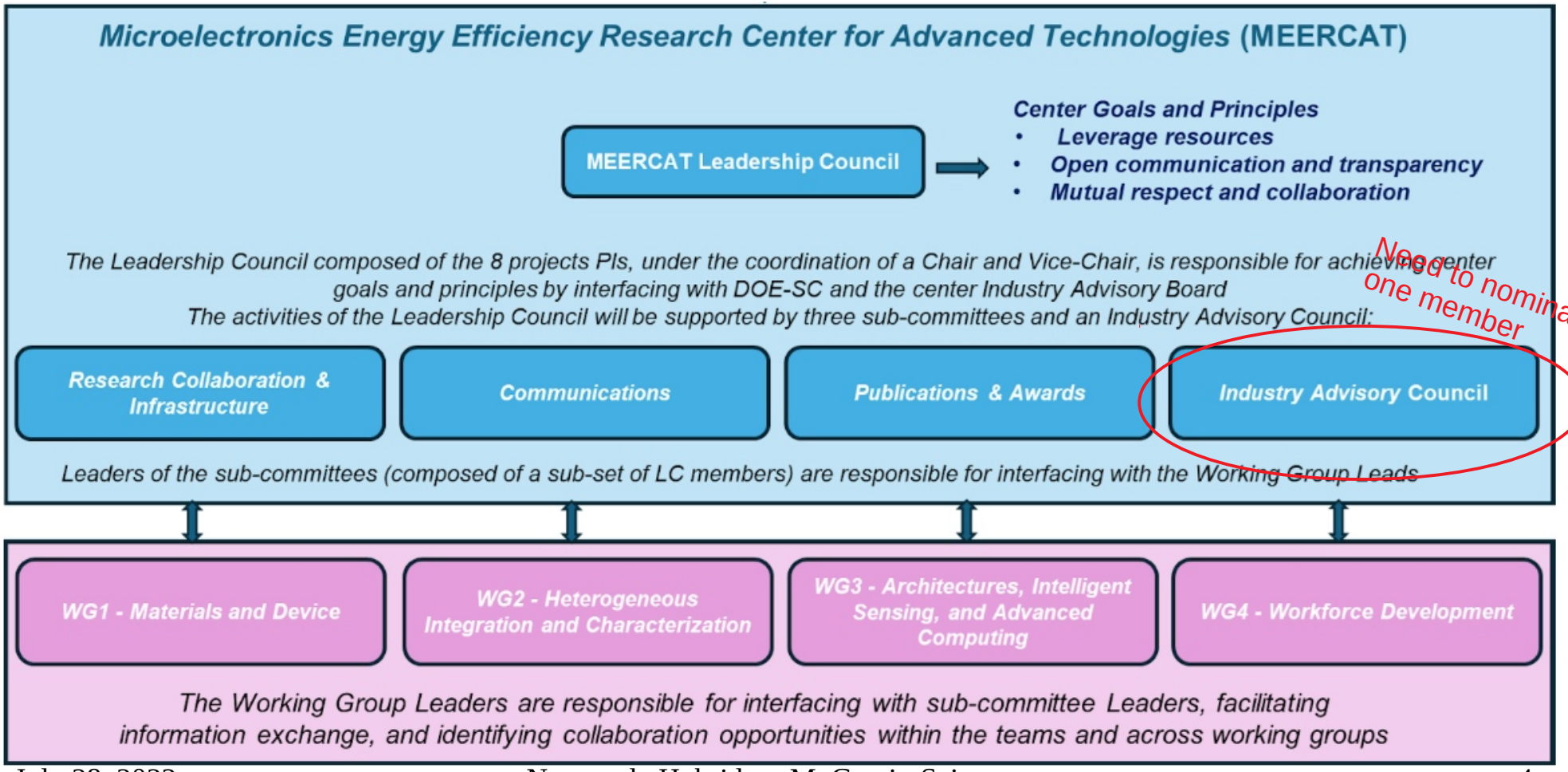
	YR1	YR2	YR3	YR4
LBNL	1851	1954	1890	1748
Sandia	499	461	500	538
UC Berkeley	213	213	213	213
UC Davis	202	186	202	213
UT Arlington	186	181	186	192
sum all	2951	2995	2991	2904

x 89%

	YR1	YR2	YR3	YR4
LBNL	1565	1604	1568	1515
Sandia	478	460	475	513
UC Berkeley	206	206	206	206
UC Davis	196	180	196	206
UT Arlington	180	175	180	185
sum all	2625	2625	2625	2625

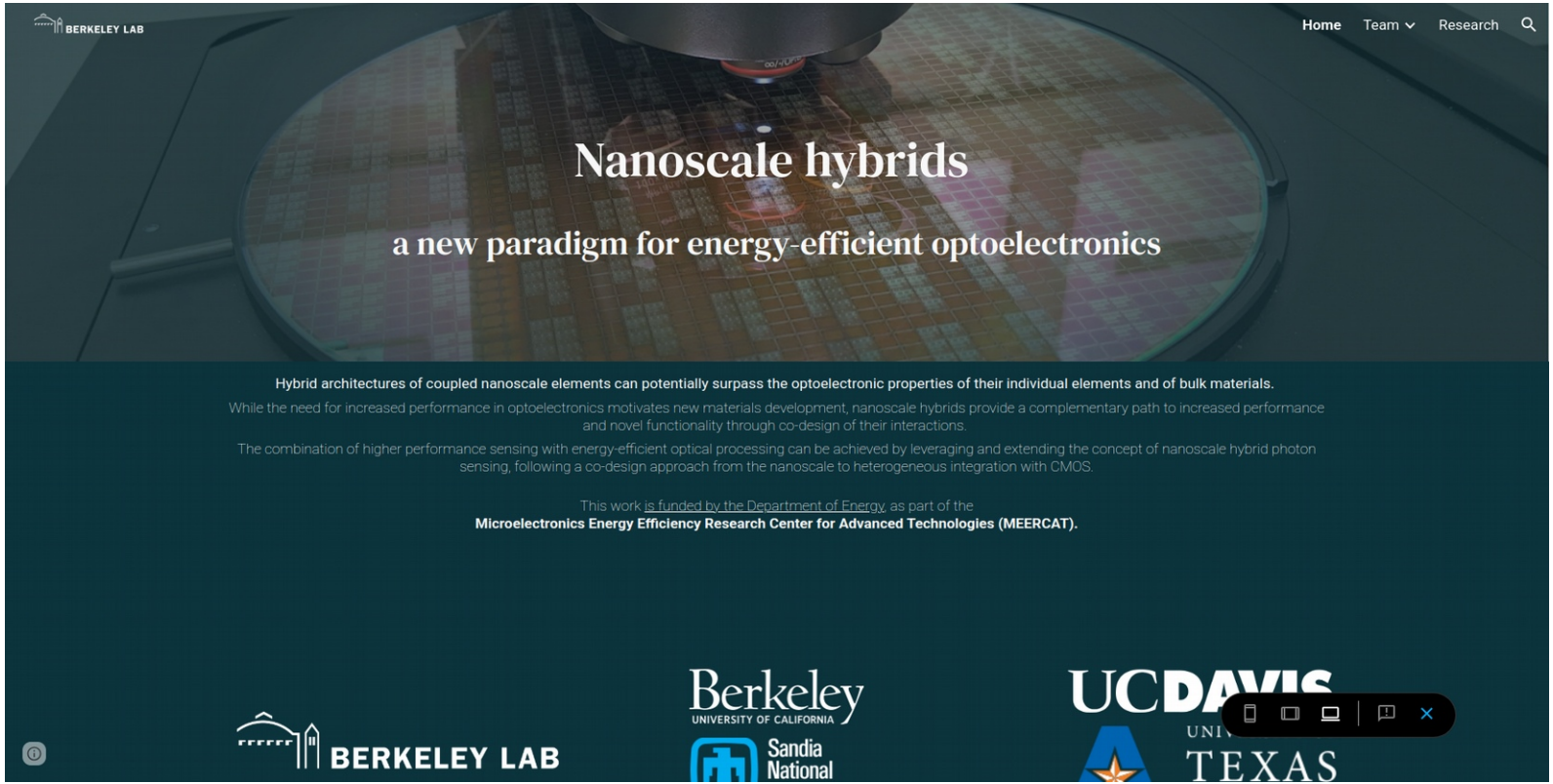
Includes 14.3% LBNL procurement overhead

Part of MEERCAT



Our project website

Katerina setting it up. Plan to have a hackathon to add/fix content before dinner



Getting to work

- Plan for each working group to follow this meeting

R&D activity	Demonstrator	Concepts & Theory	Modeling	Low-dimensional nanomaterials	Self-assembly	CMOS design and processing	Photonic processing
Activity lead(s)	M. Garcia-Sciveres	F. Leonard	Z. Yao	A. Raja	R. Ruiz	A. Papadopoulou	B. Yoo
Scientific disciplines	All	Theory Photonics Edge computing	Theory Modeling Instrumentation	Nanotechnology Microfab. & Charact.	Nanotechnology Microfab. & Charact.	Modeling Instrumentation Microfab. & Charact.	Photonics Edge computing

- Will continue weekly round table in adidtion to the working groups
  - Pick the time starting next week: https://newdle.cern.ch/newdle/4SBfwywG
  - (choose time that works in general, not next week specifically)

Dinner

- 6:30 PM at Faculty club O’Neill room
  - Salad
  - Main course selection: chicken, pork chop, veg. moussaka
  - Seasonal fruit w/creme fraiche

- They will charge my CCD and I will bill you (zelle, paypal, venmo)
- (discount for students) so estimating 35/70

Let’s get started!

- Connect to zoom to give your talk
  https://lbnl.zoom.us/j/96389202953
- Please stick to time: 15 min. talk + 5 Q&A
- The 5 Q&A is the main part!
  So I will cut you off at 15 (nothing personal)

09:00	**Introduction** *LBNL / UCB*	*Maurice Garcia-Sciveres* 09:00 - 09:15
	CMOS design requirements *LBNL / UCB*	*Aikaterini Papadopoulou* 09:15 - 09:35
	CXRO Nanofabrication Capabilities for post-processing plus results on trenches for CNTs, pads *LBNL / UCB*	*Weilun Chao* 09:35 - 10:00
10:00	**CNT device fabrication and testing** *LBNL / UCB*	*Gaurang Bhatt* 10:00 - 10:20
	Demonstrator circuits and testing *LBNL / UCB*	*Yuan Mei* 10:20 - 10:40
	coffee *LBNL / UCB*	10:40 - 11:00
11:00	**TMDC lithographic synthesis** *LBNL / UCB*	*Tevye R. Kuykendall* 11:00 - 11:20
	Exciton transport in quantum dots and 2D material *LBNL / UCB*	*Archana Raja* 11:20 - 11:40
	Te Nanowires *LBNL / UCB*	*Ali Javey* 11:40 - 12:00
12:00	**DISCUSSION** *LBNL / UCB*	12:00 - 12:20

	Photonic Sensing, Processing, and Computing *LBNL / UCB*	*S. J. Ben Yoo* 13:30 - 13:50
14:00	**In-Sensor Spectral Machine Vision** *LBNL / UCB*	*Ali Javey* 13:50 - 14:10
	Nanoengineered Optical Nonlinearity For Computing *LBNL / UCB*	*Feng Wang* 14:10 - 14:30
	Quantum photodetection and in-sensor processing *LBNL / UCB*	*Francois Leonard* 14:30 - 14:50
15:00	**Modeling overview** *LBNL / UCB*	*Zhi Yao* 14:50 - 15:10
	Break *LBNL / UCB*	15:10 - 15:30
	Modeling #1 *LBNL / UCB*	*Saurabh Sawant* 15:30 - 15:50
16:00	**Modeling #2** *LBNL / UCB*	*Joe Cuozo* 15:50 - 16:10
	DNA attachment of quantum dots on Aligned Carbon CNTs on trenches *LBNL / UCB*	*Yunjeong Park* 16:10 - 16:30
	1. Sub-20nm Block copolymer self-assembly templates for TMD conversion *LBNL / UCB*	*Ricardo Ruiz et al.* 16:30 - 16:50
17:00	**2. Nanopatterned peptoid brushes for targeted assembly** *LBNL / UCB*	*Ricardo Ruiz* 16:50 - 17:10
	3. DNA guided self-assembly of CNT-QD hybrids in solution and wafer-scale placement. *LBNL / UCB*	*Greg Tikhomirov* 17:10 - 17:30
	Photonics developments *LBNL / UCB*	*Boubacar Kante* 17:30 - 17:50
18:00	**DISCUSSION** *LBNL / UCB*	17:50 - 18:10