

Minutes
 Birck Nanotechnology Center
 "TOWN HALL" MEETING
 July 20, 2006

Agenda

- Update on landscaping, building certification, equipment installation, and lab space. (John Weaver)
- Student Council introductions. (Jim Cooper)
- Review of concerns expressed during previous Town Hall meetings. (Jim Cooper)
- Birck "administrative" announcements. (Dick Schwartz)
- Birck "community" announcements. (Deb Starewich and Jim Cooper)
- Lab fees. (Jim Cooper)
- Questions, comments, open discussion. (Everyone!)

- Update on building certification, equipment installation, and assignment of lab space. (Weaver)

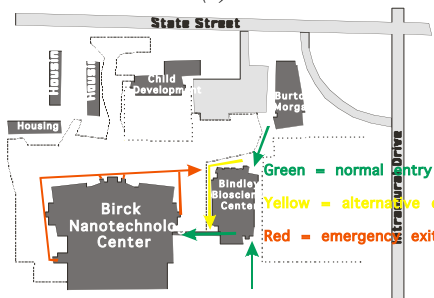
Introduction of New Staff

Jennifer Monahan-Dian, *process and equipment owner*: training and lab responsibilities

Landscaping

As is obvious, the landscaping work is underway
 Access to the building will be interrupted at some level through December 2006
 Alternative routes for entry, exit, and evacuation have been developed and implemented
 Your cooperation and understanding during this period is requested

Evacuation Route(s)



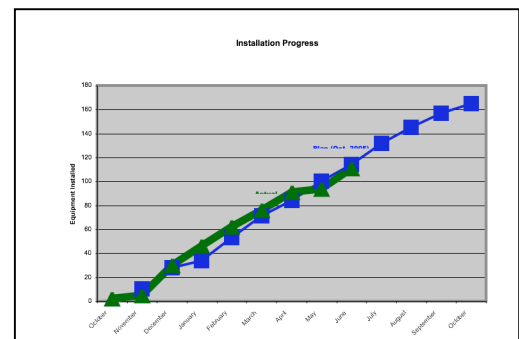
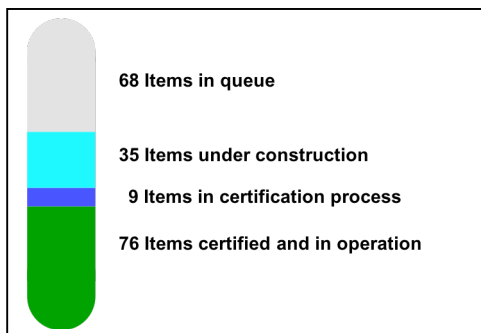
Building Update

- Ultrapure Water
 In use in cleanroom
 Piping in progress to laboratory wings, coming along well
 Added additional labor this week
- Process Gases
 Gaseous and liquid nitrogen in use
 Oxygen, Argon, Helium in use
 Hydrogen piping install underway
- Hall Nanometrology Laboratory
 Certified, equip. install in progress
 Results are far better than specified

Operations Update

- Laboratory Hoods
 Certified as needed
 Training required
Show up if you sign up!
- Cleanroom
 Open for processing
 Training required
 Prerequisites:
 Hood training
 Online quiz
Show up if you sign up!

Installation Status



- Student Council introductions. (Cooper)

The objectives of the council are (1) provide leadership for student activities involving BNC and NCN students, (2) advise the faculty leadership of the BNC and NCN on issues affecting students, (3) act as ombudsmen to help resolve student issues and complaints, and (4) act as public representatives of the BNC and NCN, including leading tours of the building.

Last Name	First	E-mail	OFFICE	PHONE	MAJOR PROF.	RESEARCH AREA
Biedermann	Laura	biedermann@purdue.edu	1092	63232	Reifenberger	STM (NANOTECHNOLOGY)
Cantley	Kurtis	kcantley@purdue.edu			Lundstrom	III-V
Chee	Joolien	joolien@purdue.edu	1076	66348	Peroulis	RF MEMS
Cola	Baratunde	bcola@purdue.edu	2218	68339	Fisher/Xu	CNTS -Heat Transfer
Deb	Parijat	pdeb@purdue.edu	2222	68314	Sands	InGaN LEDs
deRidder	Mauritz "Mau"	mderridde@purdue.edu	1080	66412	Raman	SPM
Elibol	Oguz	elibol@purdue.edu	2088	67692		
Franklin	Aaron	afrankl@purdue.edu	1084	61029	Fisher/Xu	CNT Devices
Golizadeh	Roksana	rgolizad@purdue.edu			Datta	Spinelectronics
Grafton	Meggie	mgrafton@purdue.edu	Bindley 227 J	63170	Leary	Microfluidic cell sorter
Hasan	Sayed	hasanm@purdue.edu			Lundstrom	Hot phonons in CNT
Hines	Bridget	bdolash@purdue.edu	2088	67692/67693	Bergstrom	DNA -wrapped CNTs
Kim	Raseong	kim369@purdue.edu			Lundstrom	Nano wires
Lahiji	Roya	rlahiji@physics.purdue.edu	1092	63232	Reifenberger	AFM - CNTs
Liu	Xioguang	liu79@purdue.edu	1076	66348	Peroulis	RF MEMS
Muralidharan	Bhaskaran	bmuralid@purdue.edu			Datta	Quantum Biansport
Pimparkar	Ninad	ninad@purdue.edu			Alam	CNT Network Transistor
Reddy	Bobby	jreddy@purdue.edu	2088	67692	Bashir	Nano wires
Scott	Adina	scott26@purdue.edu	2080	67407	Janes	Molecular Electronics
Sui	Yang	sui@purdue.edu	2230	68373	Cooper	SIC power transistors
Venkatesan	Murali	bvenkate@purdue.edu	1076	66348		

subcommittee listing

Executive Committee		Research Awareness and Research	
<i>President</i>	Mau deRidder	<i>Chairman</i>	Adina Scott
<i>Vice-President</i>	Bara Cola	<i>Members</i>	Joolien Chee
<i>Secretary</i>	Bridget Hines		Bobby Reddy, Jr.
<i>Treasurer</i>	Joolien Chee		Maurali Venkatesan
			Oguz Elibol
			Bara Cola
			Parijat Deb
Activities and Hospitality		Policies and Procedures	
<i>Chairman</i>	Meggie Grafton	<i>Chairman</i>	Parijat Deb
<i>Members</i>	Joolien Chee	<i>Members</i>	Mau deRidder
	Bridget Hines		Maurali Venkatesan
	Mau deRidder		Oguz Elibol
	Laura Biedermann		Adina Scott
	Bara Cola		Bara Cola
	Roya Lahiji		Laura Biedermann
			Aaron Franklin
			Roya Lahiji

- Review of concerns expressed during previous Town Hall meetings. (Cooper)
Source materials available through lab staff to maintain purity.

- Birck "administrative" announcements. (Schwartz)
Director Search: Jackie Ying on campus for second interviews 07.26 and 07.27; Tim Sands' second interview to be scheduled.
President Jischke to tour Birck: Thursday, 07.27 between 1 and 2 p.m. Please be here if you can.

- Birk “community” announcements. (Starewich and Cooper)
 New Business Office Staff introduction: Vikki Fast, responsibilities include bi-weekly payroll, credit card reconciliation, Ariba receiving, standing orders, PRF reconciliation, among others.
 When you use a conference room, please be sure to turn off the projectors and lights.
 Carry In: plans will begin on next carry with the help of the student council. Targeting the second week of classes.
 Computer Room set up: BRK 2092. Door will be keyed so that anyone with an office key will have access to the room. New furniture will be installed.
 Locker Room: BRK 1222. Order should be placed soon.

- Lab Fees and Background Information. (Cooper)

New Project Development

NCN 5-year renewal assured with 70% increase in funding (to \$18 million).

- NASA INAC ending next year (URETI program phasing out).
 Efforts are underway to seek other funding.
- BNC business office is averaging \$8 million per month in new research proposals.
- BNC research expenditures for FY 05-06: \$16,456,367

External Recognition

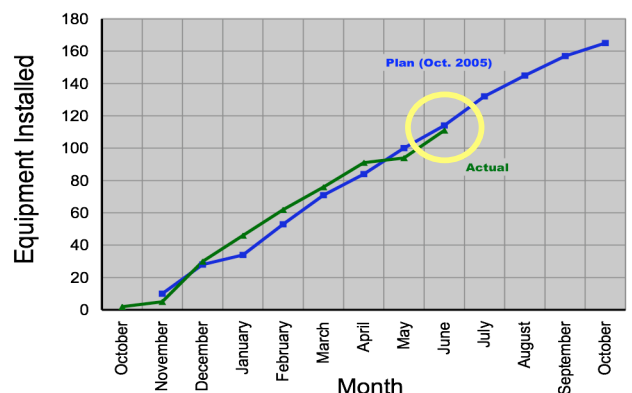
- Vlad Shalaev’s negative refractive index nanorod materials named one of top 50 innovations of 2005 by Nanotechnology Briefs.
- Purdue’s overall nanotechnology program ranked 11th in nation by *Small Times Magazine*.
- Purdue’s nanotechnology industry outreach ranked 3rd in nation by *Small Times Magazine*.

Building Certification

- Cleanroom
 Air Quality: **10x cleaner than design specs!** (45% Class-1, 40% Class-10, 15% Class-100)
 Vibration: **Below NIST-A** (lowest ever measured in an above-grade cleanroom)
- Kevin G. Hall Nanometrology Lab
 Vibration: **Below NIST-A1** (most stringent standard in existence)
 Temperature Control: **10x better than design specs!** (± 0.01 °C over 24 hour period)
- Laboratories
 Vibration: **Below NIST-A** (first floor labs)
 EMI: **20x lower than design specs!** (0.03 mG rms with overhead lines adjacent BRK disabled)
- Distribution Systems
 Ultra-Pure Water: **Cleanest in the world!** (2x cleaner than the best Intel fab!)

BNC Equipment Installation

- Approximately **63%** of equipment *installed* or *in-progress*.
- Installation is **on schedule** and **on budget**.
- Expect to be fully operational by the end of the year.



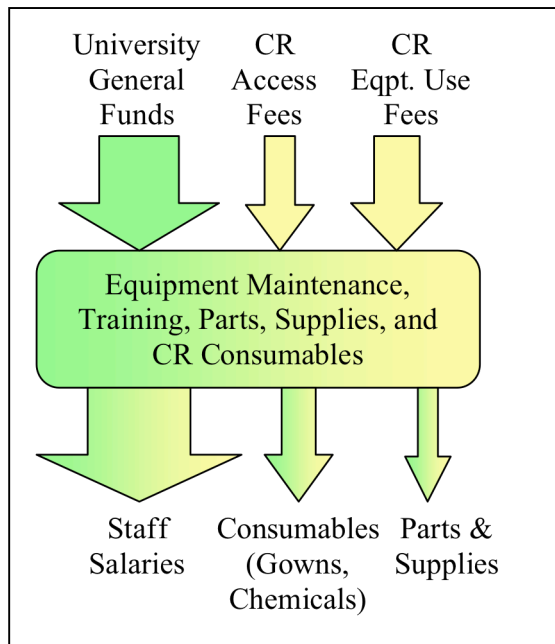
BNC Office Occupancy

- 191 BNC students and post-docs assigned to 160 desks in BRK (31 time-shared desks).
- 19 BNC students in BIND, 7 more on waiting list.
- 44 faculty assigned to BRK, estimate 34 have moved in (77%).
- All offices assigned, 13 faculty in double-occupancy offices.
- Two conference rooms converted to offices.
- 25 professional staff and 15 business / clerical staff in BRK.
- Total BRK assigned occupancy = 288

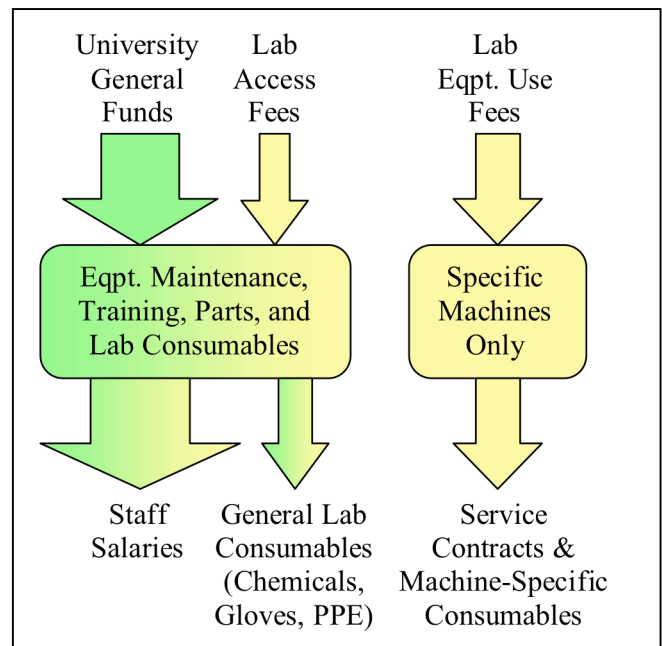
BNC Financial Management Plan

- Presentation to Provost, July 17, 2001
- Presentation to President, July 18, 2002
- January 2004. President directs Treasurer to develop financial management plan for the BNC.
- May–Dec, 2004. Financial Planning Task Force meets...
 Liz Rulli, Director of Financial Affairs, VPR
 Christy Haddock, Director of Financial Affairs, Discovery Park
 Connie Lapinskas, Assistant Provost for Financial Affairs
 John Shipley, Comptroller
 Kendra Merriman, Assistant Comptroller
 Ken Sandel, Associate Director, Budget and Fiscal Planning
 Brian Conner, Financial Manager, Physical Facilities
 Jim Cooper, Co-Director, Birck Nanotechnology Center
 Mike Ludwig, Associate Director, Sponsored Program Services
- January 2005. Financial Management Plan submitted to President. Approved in Spring 2005.

• *Cleanroom*

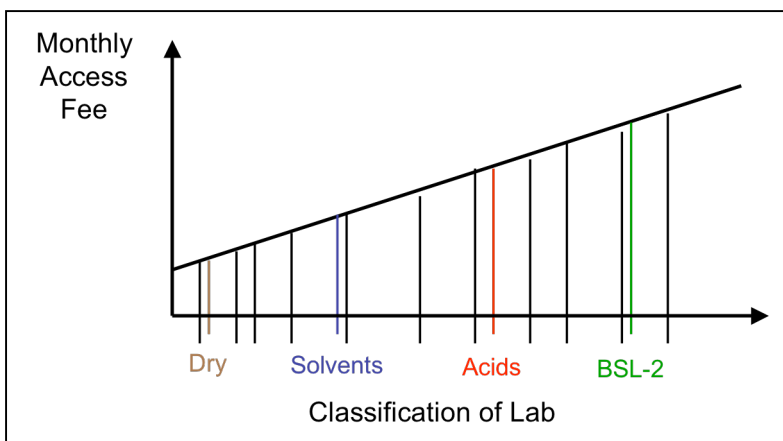


• *Laboratory*



Laboratory Access Fees

- Charged **once per month** to students with keys to labs.
- Student only pays fee for **one lab**.
- Rates for each lab will be **adjusted** as soon as **cost data** comes in (3-6 months).



Room #	Lab description	Mult.	Charge	Remarks
1031	Atomic Force Microscopy I	0.6	\$85	solvents
1039	Surface Analysis Prep	0.6	\$85	solvents
1043	Laser-Based Nano-Manufacturing	0.6	\$85	solvents
1045	X-Ray Diffraction*	0.05	\$25	no hoods
1077	Surface Analysis*	0.05	\$25	no hoods
1081	Atomic Force Microscopy II	1.6	\$193	BSL-2
1083	Low-Vibration Laboratory	0.05	\$25	no hoods
1089	Control Room	0.05	\$25	no hoods
1089A	Hall Nanometrology Laboratory	0.05	\$25	no hoods
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1217	Laser Deposition and Diagnostics	1	\$128	acids
1227	Nanotechnology Incubator	1	\$128	acids
1233	SEM Prep	0.6	\$85	solvents
1235	FE SEM*	0.05	\$25	no hoods
1237	FIB*	0.05	\$25	no hoods
1239	SEM*	0.05	\$25	no hoods
1261	Dark Room	0.6	\$85	solvents
1263	TEM*	0.05	\$25	no hoods
1265	TEM*	0.05	\$25	no hoods
1267	TEM Prep	0.6	\$85	solvents
1269	FE TEM*	0.05	\$25	no hoods
1273	Nanophotonics	0.05	\$25	hoods not in use
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2031	Nano Chemistry	1	\$128	acids
2037	Analytical Chemistry	0.05	\$25	hoods not in use
2043	Bio-Nano II	1.6	\$193	BSL-2
2077	Bio-MEMS	1	\$128	acids
2081	Bio-Sensors	0.6	\$85	solvents
2087	Bio-Nano I	1.6	\$193	BSL-2
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2217	Crystal Growth/MBE	1	\$128	acids
2221	Crystal Growth/CVD	1	\$128	acids
2233	RF Microwave Characterization	0.05	\$25	hoods not in use
2239	NanoMechanical MEMS	0.05	\$25	hoods not in use
2261	Electrical Characterization*	0.05	\$25	hoods not in use
2277	Crystal Growth/Organic Materials	1	\$128	acids
2283	Carbon Nanotube Laboratory	0.6	\$85	solvents
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* Indicates labs where equipment use charges may also apply.				

RATE	\$108
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BASE FEE	\$20
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- Questions, comments, open discussion. (Everyone!)
 - Telephones in cleanroom?
 - There are two: near the EB writer and in the photo mask generation areas
 - Action item:* to add at least two more phones in main clean room aisle
 - Chemicals and equipment to be moved from EE 306 in the next few days.
 - Acid hoods: nitrogen lines are located above sink; tubing gets in way of process; coil tubing presents problems, too.
 - Action item:* Lab personnel to research remedies.
 - Cameras on the microscopes?
 - hard drive crashed and died; new hard drive purchased; software licenses need to be purchased
 - Action item:* purchase and install new software
 - Trash cans near the hoods?
 - Located in the main clean room aisle: rinse and wring before disposing
 - Aprons in labs?
 - Action item:* Off-line discussion to take place
 - Safety plan for solvent use to remain in effect.
 - Chemical orders: please indicate “home” (where chemical is to be delivered – must be in lab room or clean room areas; **WILL NOT BE DELIVERED TO ANY OFFICES**) in the comment area
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- Attendance (sign in sheet distributed): 41 (March: 51; April: 30; May: 22; June 36); thank you for your participation and support

Lisa Reece
Elizabeth Caldwell
Amber Miller
Richard Schwartz
Bridget Hines
Xiaoguang Liu
Hao Han Hsu
Chunghao Chen
Mauritz deRidder
Matt Spletzer
Demir Akin
Vlad Drachev
Helen McNally
Roya Lahiji

Bara Cola
Mark Oliver
Parijat Deb
Ratnakar Karu
Stephen Jurss
Alicia Goodman
Angie Hoffine
Victoria Fast
Annie Cheever
Oguz Elibol
Sheryl Willison
Dave Lubelski
John Coy
Jennifer Monahan-Dian

Josh Smith
Aaron Franklin
George Adams
Mary Jo Totten
Mark Voorhis
Arvind Raman
Ron Reifenberger
Samir Iqbal
Matt Potrawski
Bobby Reddy
Deb Starewich
Jim Cooper
John Weaver

Next Meeting
Thursday, August 17
1:30
BRK 1001