



Marvell
Nanofabrication
Laboratory

2013 Principal Investigators Meeting

Professor Ming C. Wu

Faculty Director

Dr. Bill Flounders

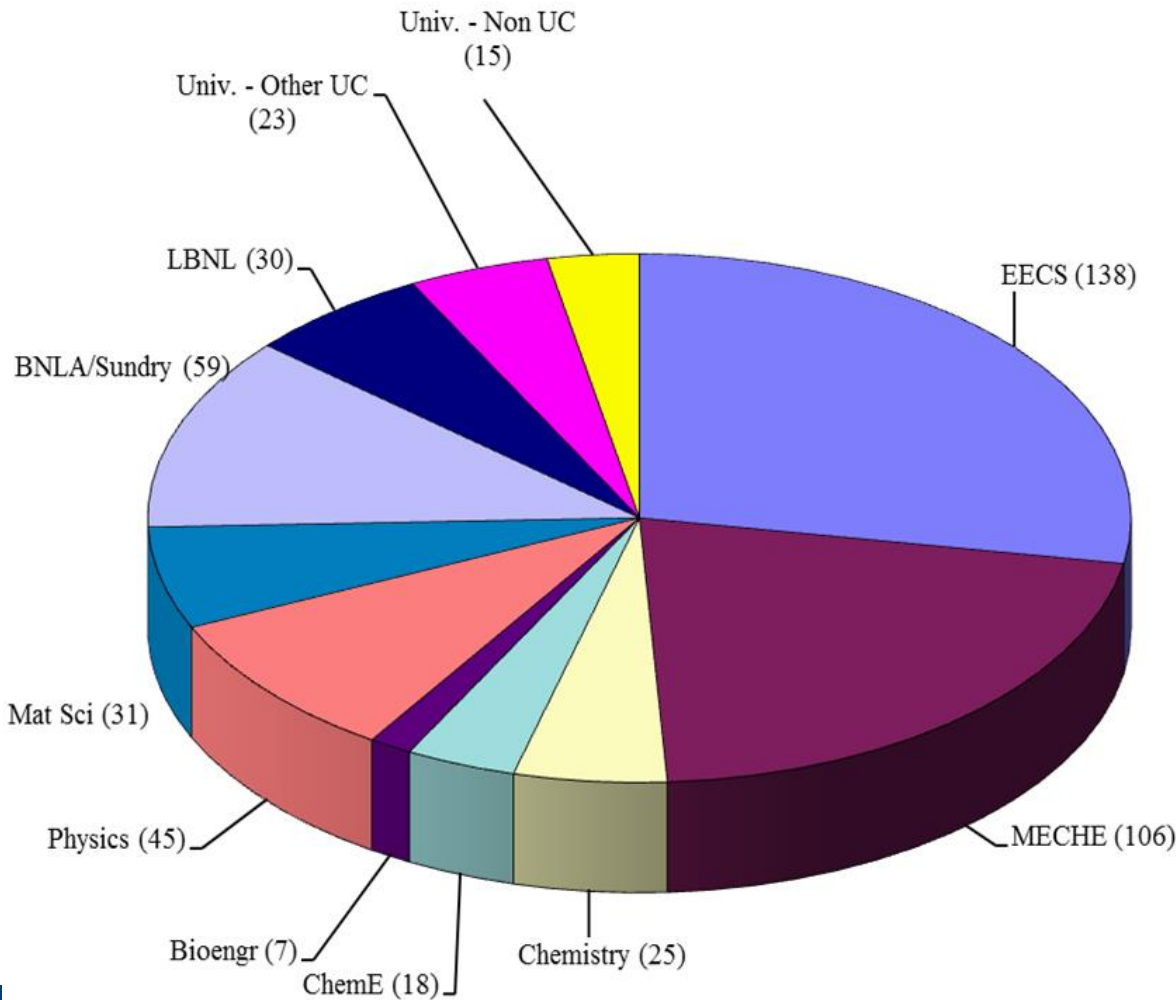
Executive Director

Agenda

- Lab Membership
- Historical Review
 - University Fees
 - University Overheads
 - NanoLab Operations Cost
 - Lab and Equipment Use Hours
- 2014 New Recharge Rates
 - Academic
 - BNLA
- Next Generation NNIN (Prof Wu)

Lab Members by Department FY 12 Total = 497

Membership is strong and stable



2012

External: 125 (25.2%)

Internal: 372

Total: 497

2011

External: 121 (25.5%)

Internal: 353

Total: 474

2010

External: 99 (21.1%)

Internal: 370

Total: 469

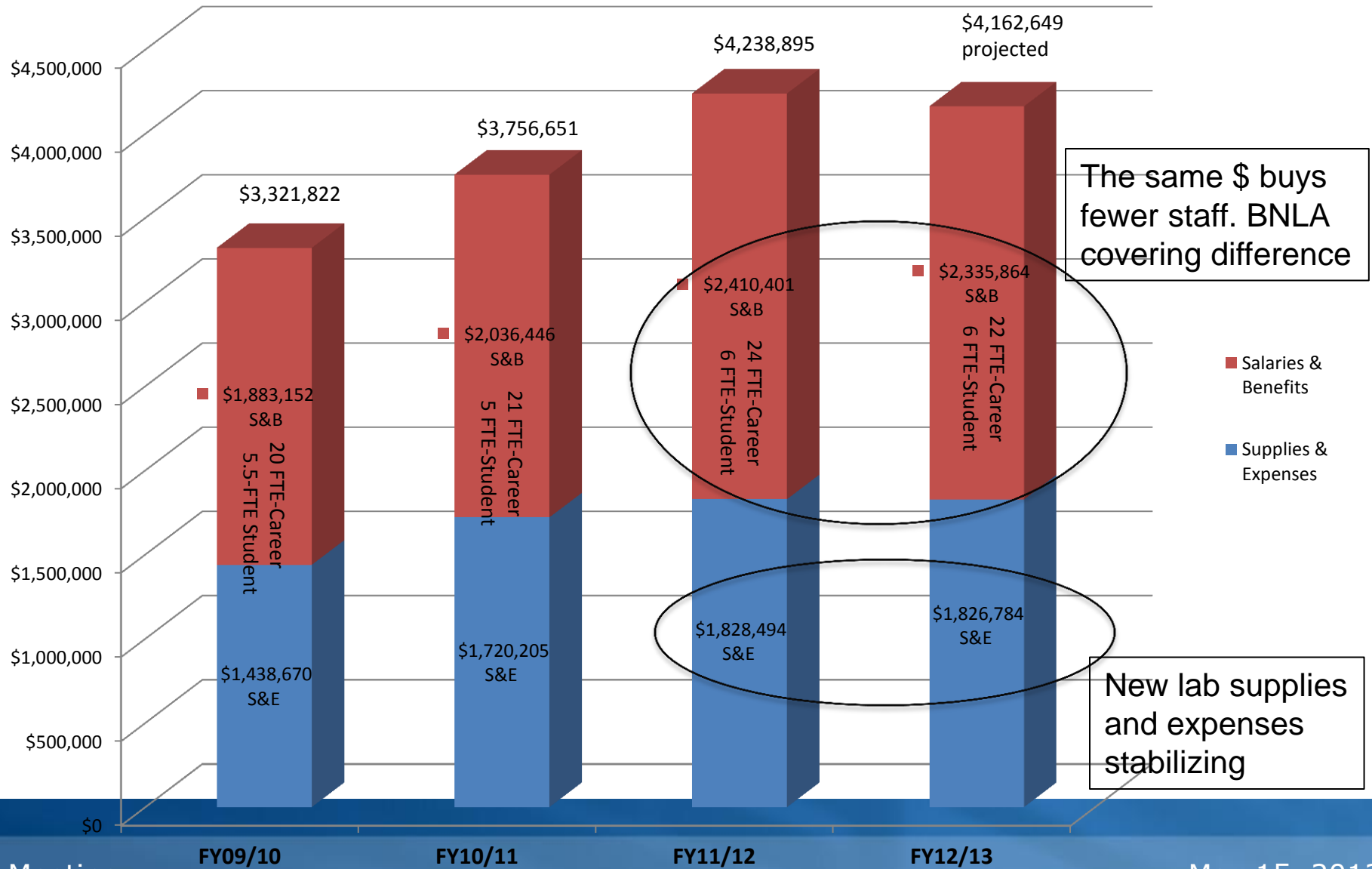
Staff Benefit and Campus Overhead Rates

Benefit Rate Increase 10% in past 2 years

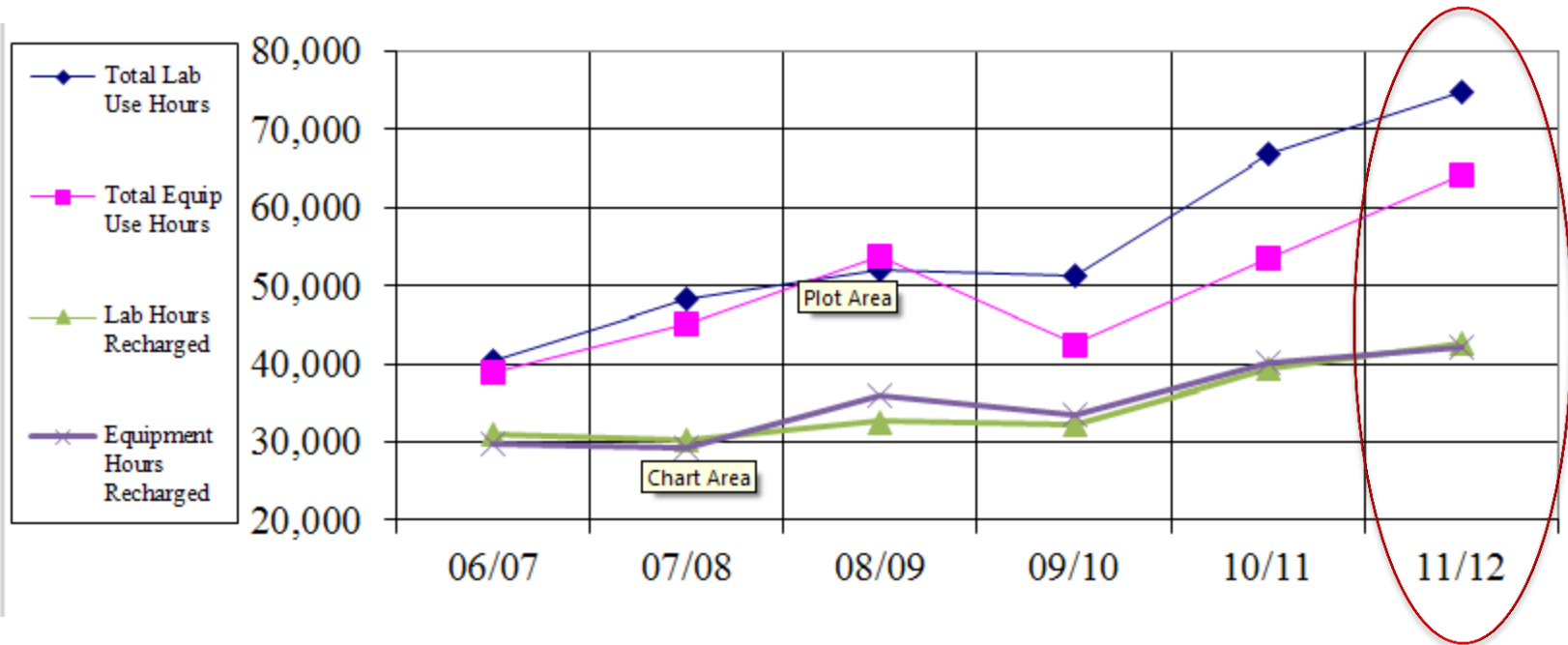
20% expected over 6 years

Fiscal Year		2011	2012	2013	2014	2015	2016	2017	2018
Staff Benefit	%	28	33	38	40	42.3	44.7	47.2	49.8
Campus Overhead	%	55.5	55.5	55.5	56.5	56.5	57	TBD	TBD

NanoLab Operations Salary & Benefits and Supplies & Expenses Comparison Fiscal Year 09/10 - 12/13



Total Use Hours vs Recharged Hours General Lab and Equipment



Hours “over cap” approaching billed hours.
Unclear if this trend is “real”. As a student reaches the cap, they become careless about logout and disabling equipment

NanoLab Recharge Rates

Fiscal Years: 11 - 12 - 13 - 14

Present Year

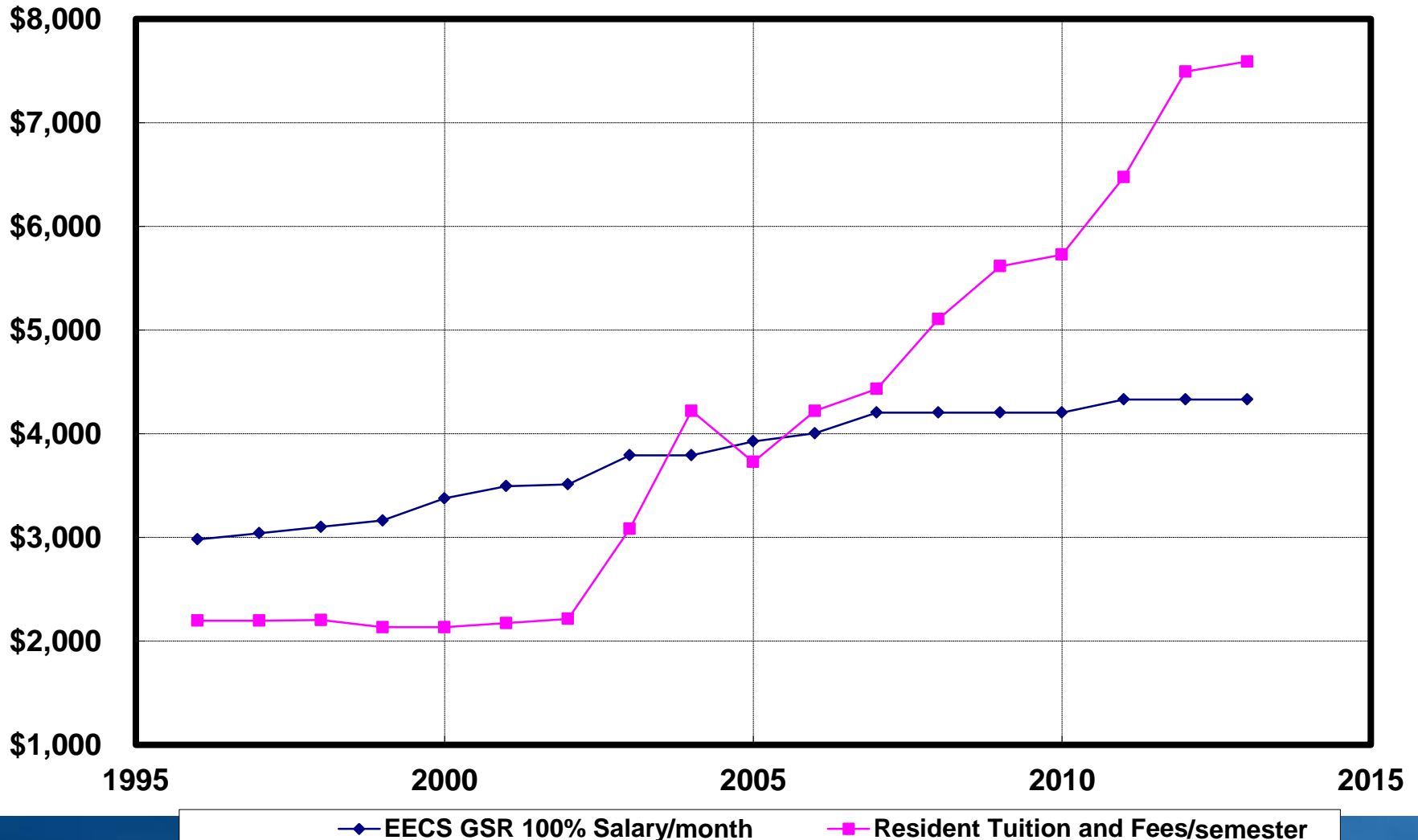
	2011	Cap	% +	2012	Cap	% +	2013	Cap	% +	2014	Cap No Change	Rate Over Cap
Access	\$89.00	N/A	0%	\$89.00	N/A	0%	\$89.00	N/A	3%	\$91.50	N/A	N/A
General	\$39.60	\$1,260	2%	\$40.20	\$1,260	3%	\$41.40	\$1,300	4%	\$43.00	\$1,300	N/A
Equip	\$37.20	\$1,470	2%	\$37.80	\$1,470	3%	\$39.00	\$1,500	4.6%	\$40.80	\$1,500	\$10.20
Staff	\$69.00	N/A	0%	\$69.00	N/A	5%	\$72.60	N/A	3%	\$75.00	N/A	N/A

New rates include “soft cap” for equipment use.

After reaching \$1500/month; rate is 25%

UC Fees and EECS GSR Salary

Tuition and Fee increases >> NanoLab rate changes



BNLA Membership Fees

	Yearly BNLA Fee	
	Previous (since 2001)	Effective 7/1/13
Lab Members/Company		
1	\$15,000	\$17,500
2	\$25,000	\$27,500
3 - 4	\$35,000	\$37,500
5 - 6	\$50,000	\$55,000
General Cap	\$1600	\$2200
Equip Cap	None	None

BNLA Collected Income, FY08/09 - FY12/13

(Includes Materials, but not OH)

BNLA recharge percentage and absolute \$ increasing; Academic decreasing

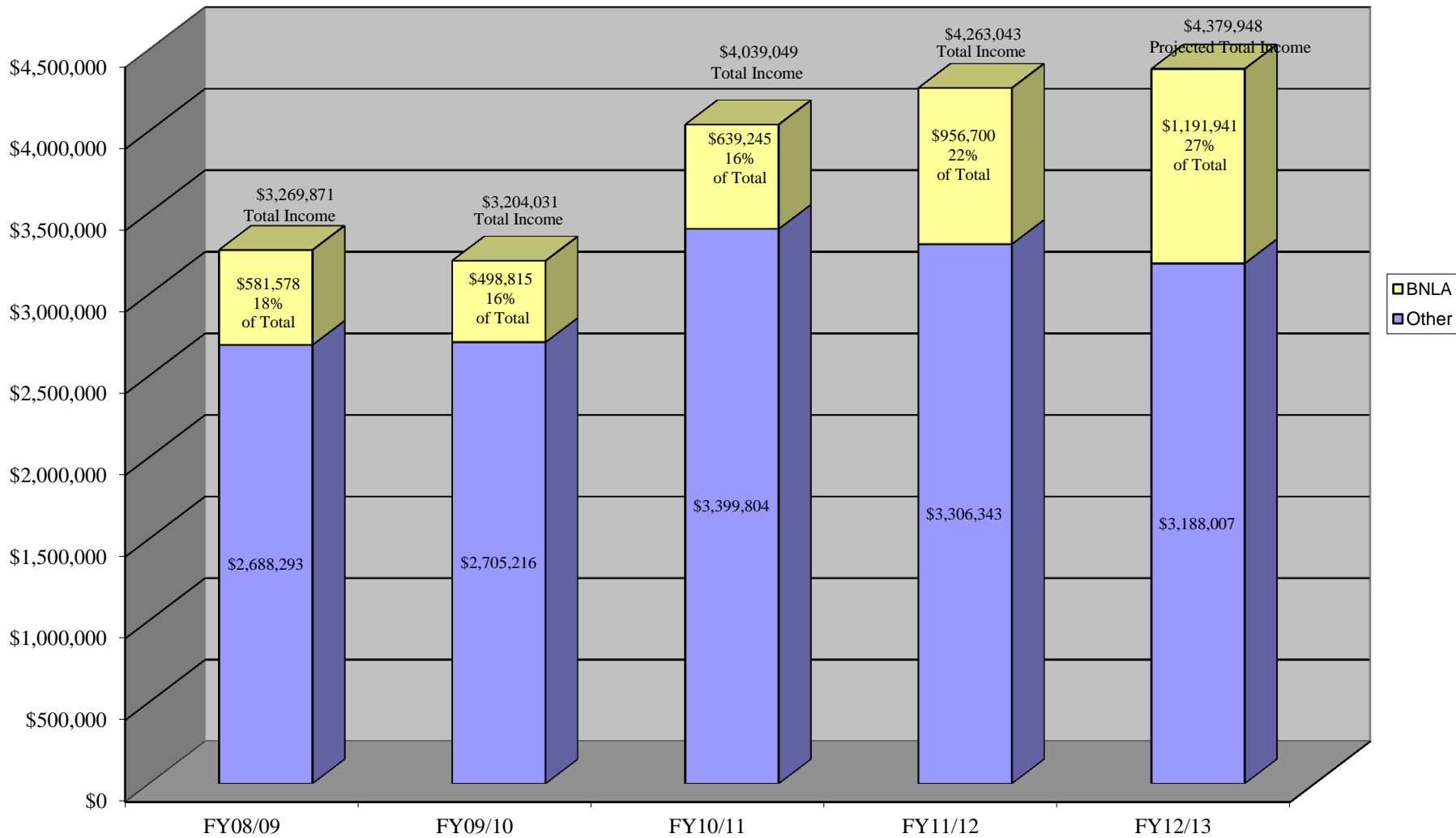


Figure 4.

Issue from PIs	Response	Support
Metal Films	New CHA evap (E3S) Tescal overhaul Ultek overhaul (BNLA) Evap Class New Process Engineer	E3S Subramanian, BNLA BNLA NanoLab NanoLab
Metrology	New FEI SEM SW upgrade and new tip for leo New 3D profiling microscope SEM Class, Microscope class New Process Engineer	E3S BNLA BNLA NanoLab NanoLab/BNLA
III-V Processing	New RTP New ICP DPS Etch	Donation Chang-Hasnain Redirect centura-dps
Wafer Bonding Still open	New wafer bonder	Multiple Pis BNLA

Summary

- Equipment hours offset must be addressed
 - Soft cap imposed at 25% on equipment use. This is only ~\$10/hour
- NanoLab Staff fixed costs are steadily increasing
- PI GSR fees and University OH are steadily increasing
- NanoLab recharge rate increases are << than university increases
- NanoLab rate increases have focused upon external non-academic
- Start up is complete, efficiencies now being developed
 - CDA for dry pumps
 - Gas sensor consolidation
 - BNLA targeted requests (etch gas support, ASML laser support)
- NG-NNIN requires external growth but provides internal support

**The shared lab model is alive and well
thanks to your support.**

**The NanoLab responds to your issues and
works to control your costs.**

Just after the last PI Meeting Oski visited the NanoLab May 16, 2012



Oski had a great visit to the NanoLab

Some photos for your review

