

NSF-PHY News

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**HEPAP
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Major Projects

- Projects Under Construction
 - IceCube
 - AdvLIGO
- New Project in Preliminary Design Phase
 - DUSEL (long baseline neutrino detector, Dark Matter, proton decay, neutrinoless double beta decay, low-energy nuclear reactions, supernovae/primordial neutrinos)
- Proposed Upgrade
 - LHC Detectors

NSF Annual Review of the DUSEL Design Project

- Held at U.C. Berkeley (S3 awardee institution).
- 28-30 January 2009.
- Diverse group of 24 world-class experts.
- Charged to evaluate:
 - Project status & progress to date;
 - Plans to deliver a comprehensive Preliminary Design on stated project time scales;
 - All major elements of the project: science, cost, schedule, risks, management, ES&H, E&O, etc., at whatever stage they are at.

This important first review is intended to provide the NSF with an initial evaluation of the total project, with a special eye toward generating constructive recommendations from the experts that will help sharpen & guide the path moving forward.

DUSEL Design: Solicitations 3 & 4

- MREFC envisioned to consist of both facility & experiments.
- Solicitation 3 governs facility & infrastructure design.
 - U.C. Berkeley, awardee for Homestake proposal.
 - Award made July 2007, \$15M from PHY/MPS over 3 years.
- Solicitation 4 governs designs for candidate experiments.
 - Up to \$15M total from PHY/MPS, distributed over 3 years.
- S4 proposal deadline 9 January 2009.
- 25 proposals received.
 - Includes 8 non-physics (Engineering, Geosciences).
 - Many proposals are from multiple institutions (collaborative) and/or submitted on behalf of large collaborations (51 institutions).
- Will be reviewed in spring, awards made over summer.

DUSEL Working Timeline

- July '08: Internal project review of facility & infrastructure.
- January '09: NSF Project Review #1.
- January '10: NSF Project Review #2.
- December '10: NSF Preliminary Design Review (PDR).
 - Project readiness, plan will be assessed at this milestone.
- Spring '11: Presentation of DUSEL MREFC package to NSB.
- FY13: Earliest construction funding (MREFC) start, if approved.

**Planning with potential partners (DOE, international, etc.)
being integrated into above schedule.**

Astroparticle Physics Projects

- **Gravitational Waves: LIGO/AdvLIGO** (GEO, VIRGO, TAMA, 11 countries)
- **Cosmological Neutrinos: IceCube** (NSF-OPP, Germany, Sweden, Belgium)
- **Underground Physics: DUSEL** (DOE-HEP, NP)
- **Dark Matter: CDMS, XENON, WARP, ZEPLIN, DRIFT, COUPP, LUX** (NSF-AST, DOE-HEP, INFN, STFC, Germany, Poland)
- **Cosmic Rays: AUGER, (HiRes), TA, Veritas, (Milagro)** (NSF-AST, DOE-HEP, Japan, Korea, Canada, Ireland, Smithsonian, 17 more countries)
- **Neutrinos: Borexino, Double Chooz, CUORE, Daya Bay** (DOE-NP, DOE-HEP, INFN, France, Germany, Brazil, Japan, Russia, Spain, UK)
- **Structure of the Universe: ACT** (NSF-AST)
- **B-Mode Polarization of CMB: QUIET** (NSF-AST)
- **Origin of the Elements: NSCL** (DOE-NP)

Division of Physics

**AMOP
Physics**

**Elementary
Particle Physics**

**Part. & Nucl.
Astrophysics**

**Physics Front.
Centers**

**Theoretical
Physics**

**Nuclear
Physics**

**Physics of Living
Systems**

**Physics @
Inform. Front.**

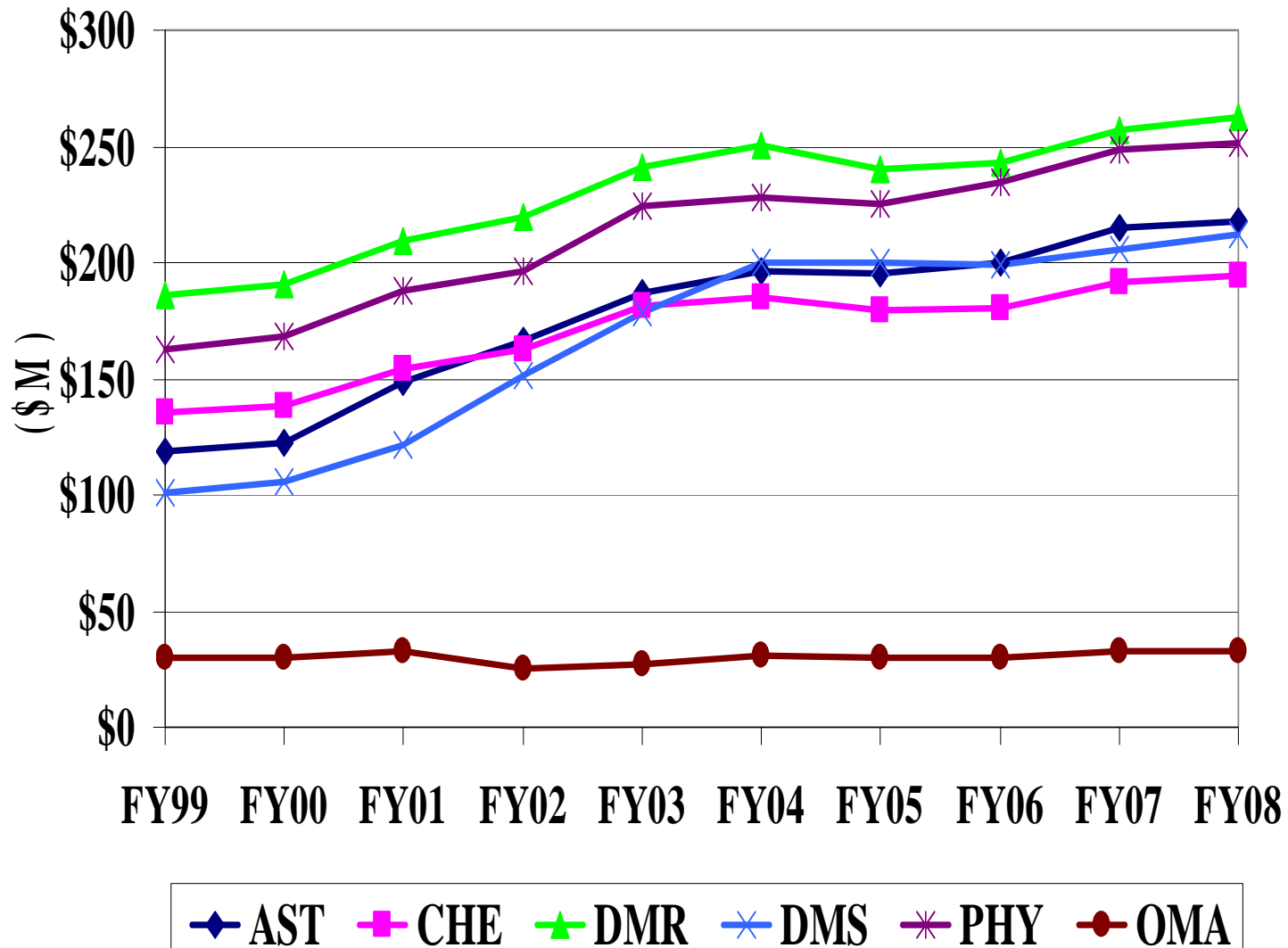
**Gravitational
Physics**

**Education &
Interdisc. Res.**

**Accelerator Phy.
& Phy. Instrum.**

Ten-Year Funding History

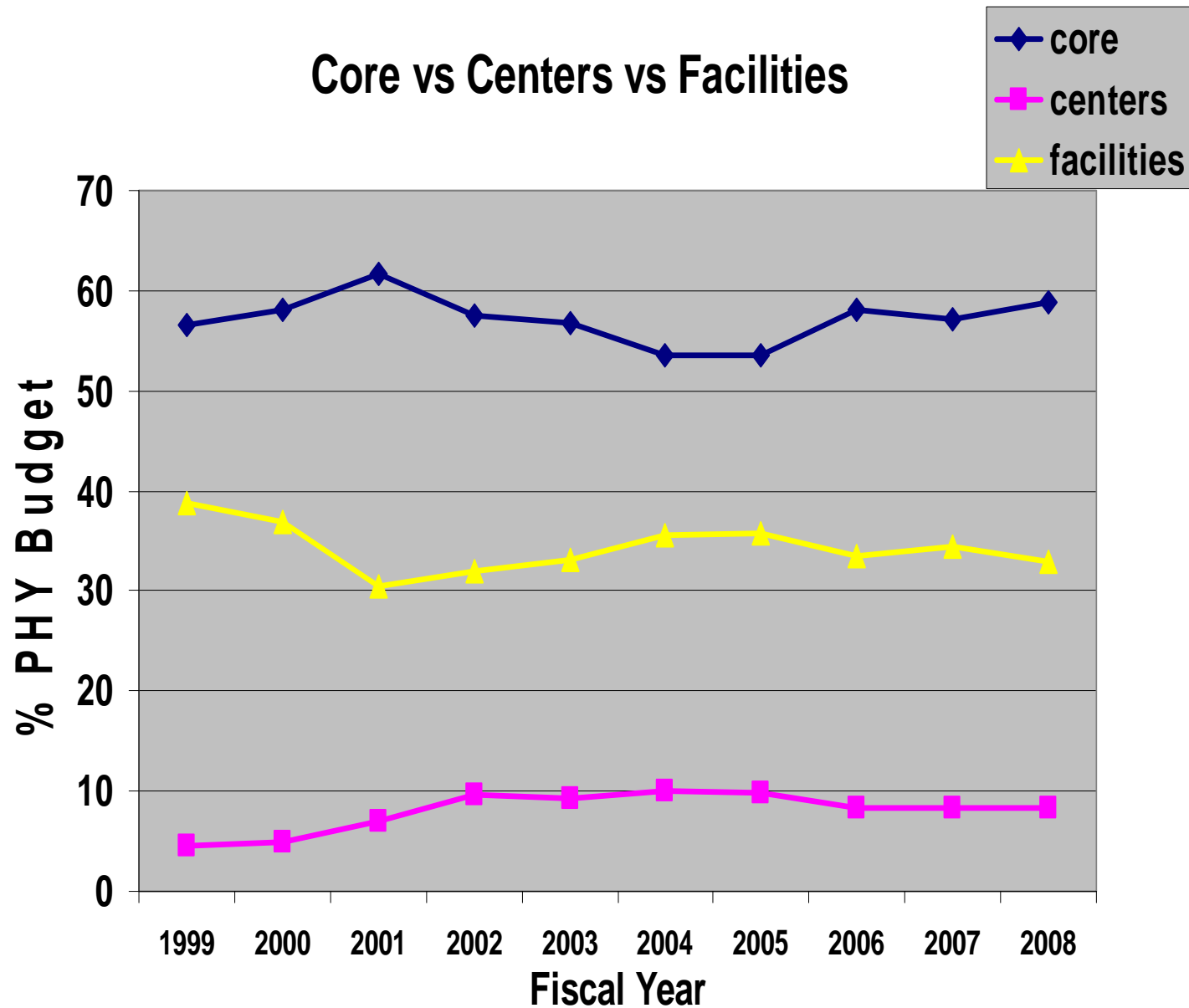
Ave MREFC + MRI in PHY = \$26.4 M



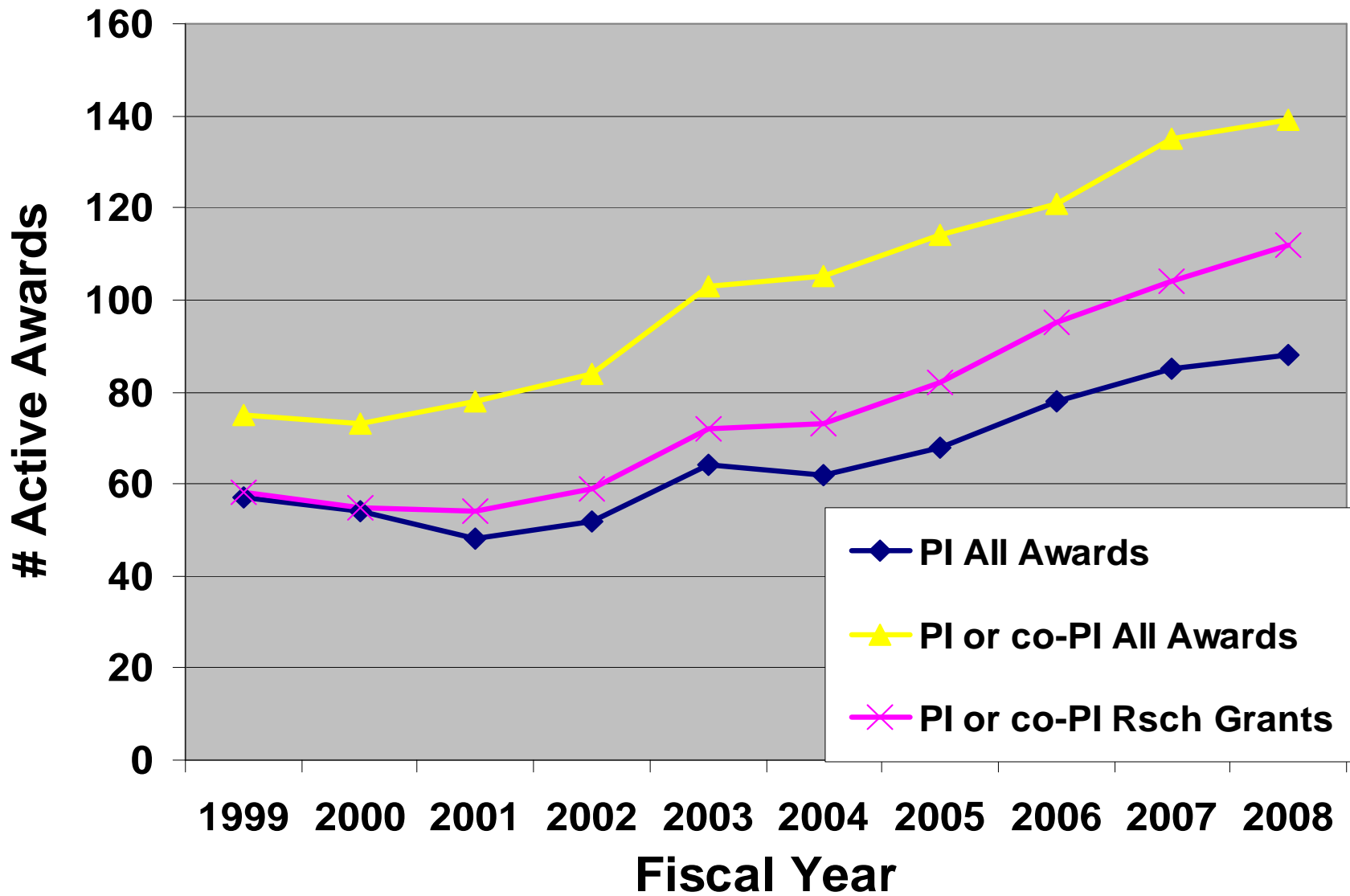
MPS by Division

	FY 2006 Actuals	FY 2007 Actuals	Change from 06 to 07	FY 2008 Actuals	Change from 07 to 08	FY 2009 Request	Change from 08 to 09
AST	199.75	215.39	7.83%	217.90	1.17%	250.01	14.74%
CHE	180.70	191.22	5.82%	194.62	1.78%	244.67	25.72%
DMR	242.59	257.27	6.05%	262.54	2.05%	324.59	23.63%
DMS	199.52	205.74	3.12%	211.75	2.92%	245.70	16.03%
PHY	234.15	248.47	6.12%	251.64	1.28%	297.70	18.30%
OMA	29.90	32.64	9.16%	32.67	0.09%	40.00	22.44%
MPS	1086.61	1150.73	5.90%	1171.12	1.77%	1402.67	19.77%
R&RA	4054.43	4758.44	17.36%	4853.25	1.99%	5593.99	15.26%
NSF	5369.34	5884.37	9.59%	6084.04	3.39%	6854.10	12.66%

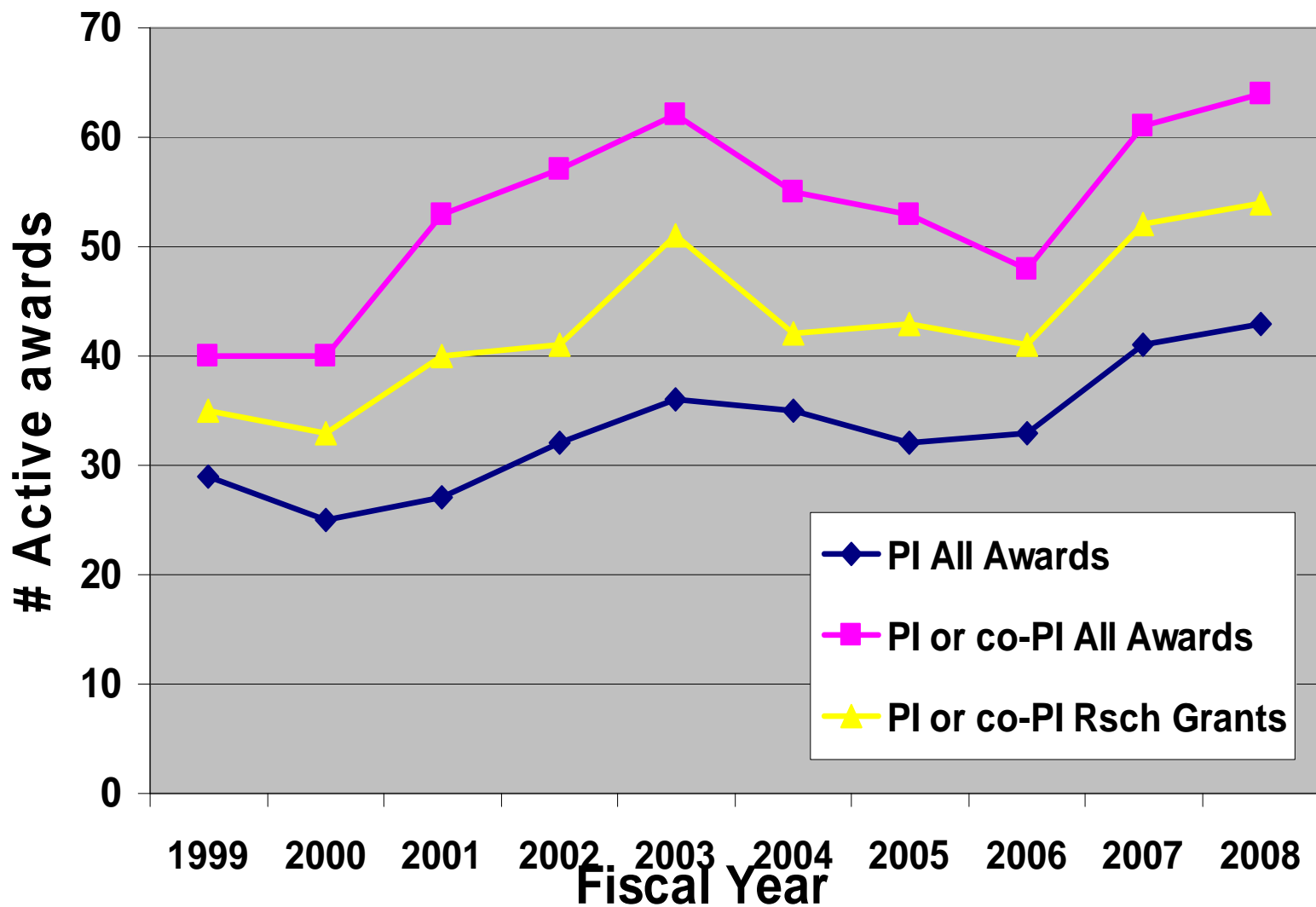
Budget sectors over time



Research Grants with Female PIs



Active Awards with Minority PIs



% of All Active Awards

