

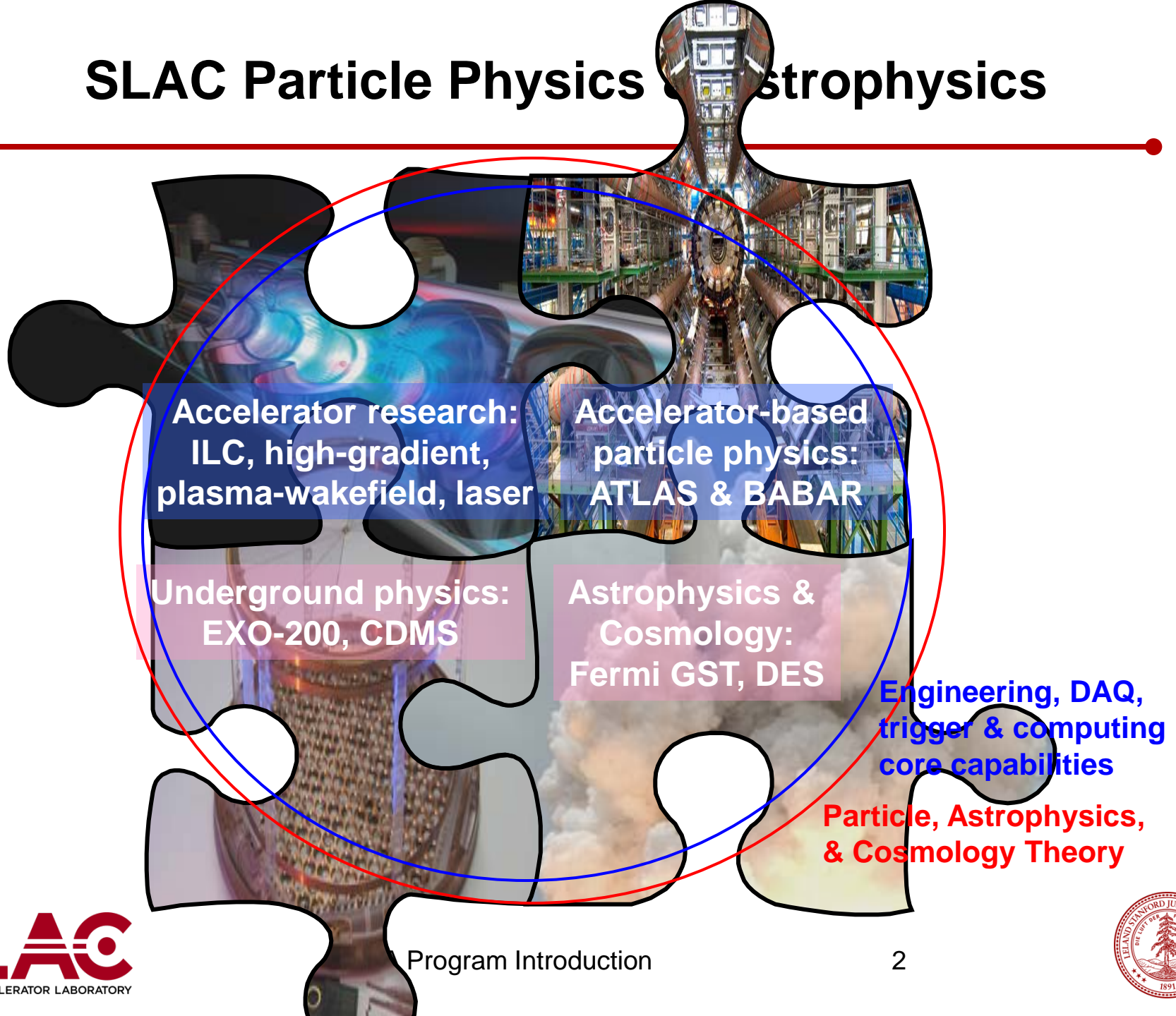
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# PPA Program Introduction

David MacFarlane  
*Associate Laboratory Director for PPA*

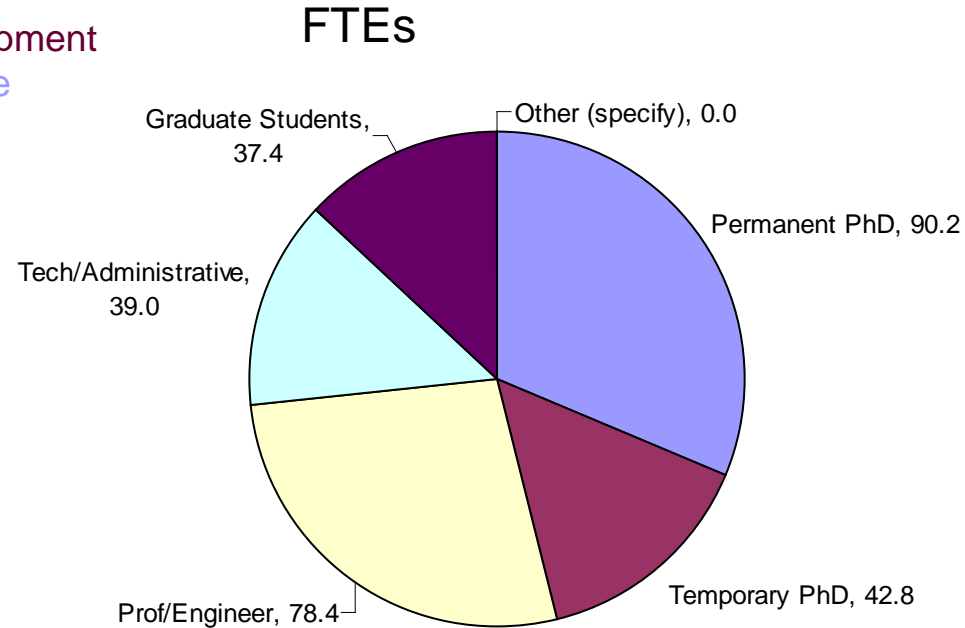
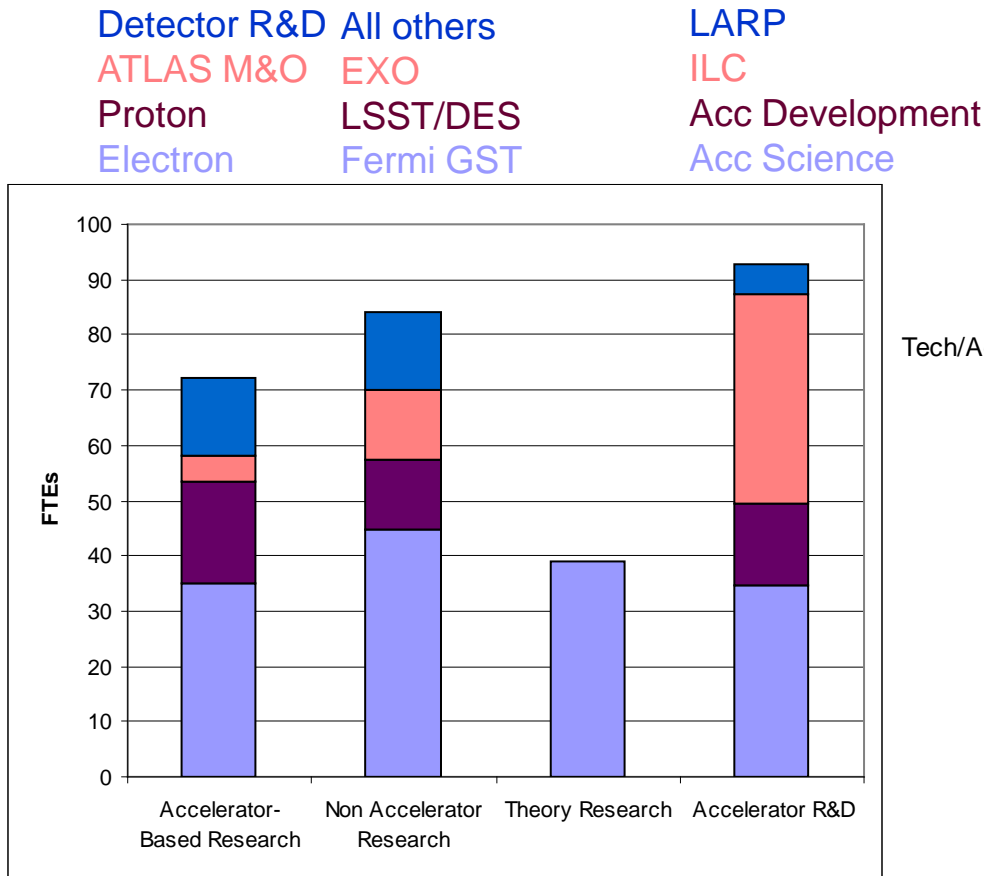
DOE Review of the Laboratory Scientific Computing Program  
February 9, 2011

# SLAC Particle Physics & Astrophysics



# Main research program breakdown by FTEs

FY2010, 288 FTEs, \$73M core, ILC, LARP, detector R&D [\$95M total + FACET]



Includes faculty, staff, postdocs, and students

# Future Projects

ATLAS  
upgrades

LHC upgrades,  
ILC, CLIC, Muon  
Collider

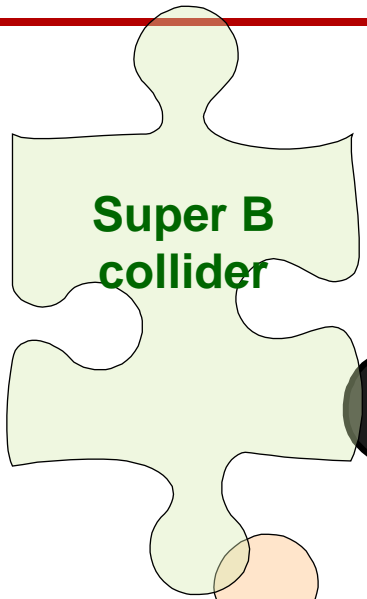
Accelerator research:  
ILC, high-gradient,  
plasma-wakefield, laser

Accelerator-based  
particle physics:  
ATLAS & BABAR

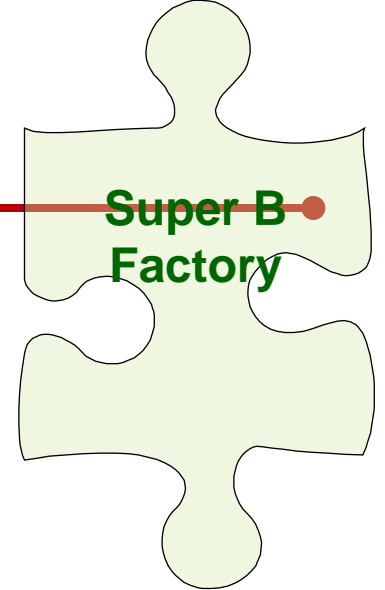
Underground physics:  
EXO-200, CDMS

Astrophysics &  
Cosmology:  
Fermi GST, DES

# Future Projects



**Super B  
collider**

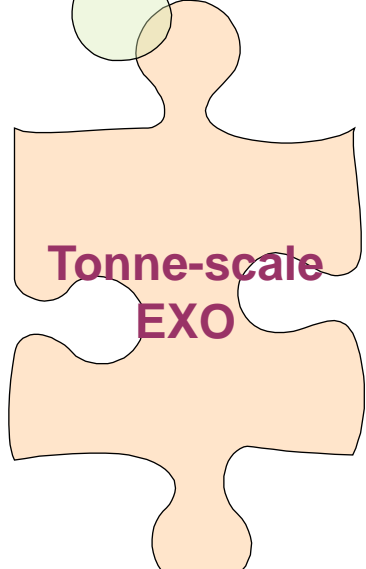


**Super B  
Factory**



**Accelerator research:  
ILC, high-gradient,  
plasma-wakefield, laser**

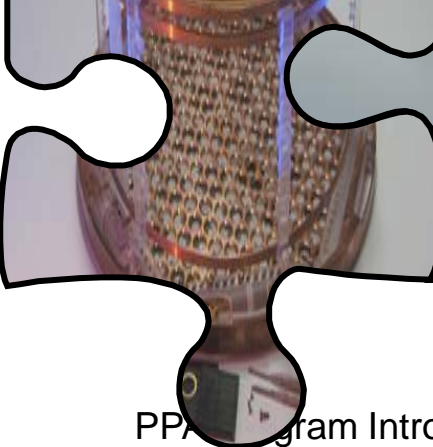
**Accelerator-based  
particle physics:  
ATLAS & BABAR**



**Tonne-scale  
EXO**

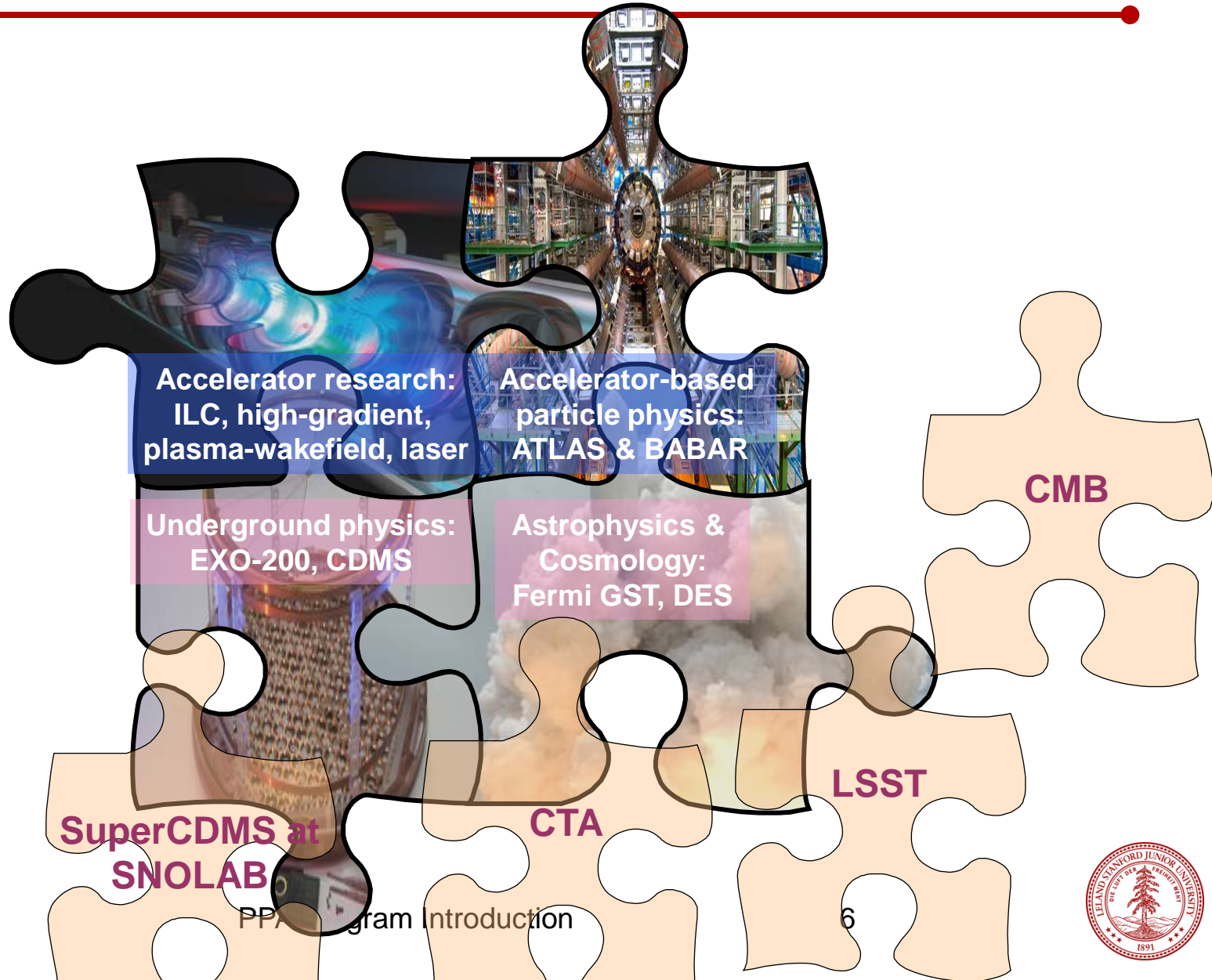
**Underground physics:  
EXO-200, CDMS**

**Astrophysics &  
Cosmology:  
Fermi GST, DES**





# Future Projects



# Capabilities and Projects

	BABAR	FERMI	ATLAS	LSST	WFIRST	KIPAC	LCLS/ PS
established	DAQ/ trigger	✓	✓	✓	✓	✓	✓
	Space systems		✓			✓	
	Pipeline processing	✓	✓	✓	✓	✓	✓
	Petascale datasets	✓	✓	✓	✓	✓	✓
developing	Petascale databases	(lessons learned!)			✓	✓	?
	MPI/SMP	some analyses			some analyses	✓ ✓	✓ ✓ (imaging)
	Visualization		✓?		✓	✓?	✓ ✓
new R&D	Advanced CPU/GPU use			will need someday		✓	✓



SLAC National Accelerator Laboratory  
Persis Drell, Director  
Alexander Merola, COO

Damping  
Rings

FACET

Main Linac

LCLS  
Injector

Operations  
A. Merola

Accelerator  
N. Holtkamp

Particle Physics  
& Astrophysics  
D. MacFarlane

LCLS  
J. Stohr

SSRL  
C.-C.Kao

Photon Science  
K. Hodgson

PEP-II

End  
Station B

Computing  
Division

Accelerator  
Research

NLCTA

End  
Station A

SPEAR3

Guest  
House

Sci Computing  
Applications

Particle  
Physics

Particle  
Astrophysics

LCLS

LCLS  
Far Hall

CEH

BABAR

Associate Laboratory Directors

Science Divisions



# Presentation plan

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- PPA Program Introduction — this talk
- Operations and Cost Model — Randy Melen
- Scientific Computing Opportunities & Goals — Richard Dubois
- GEANT4 Effort — Makoto Asai
- Computational Cosmology Initiative — Risa Wechsler
- Budget and Support Model — dbm