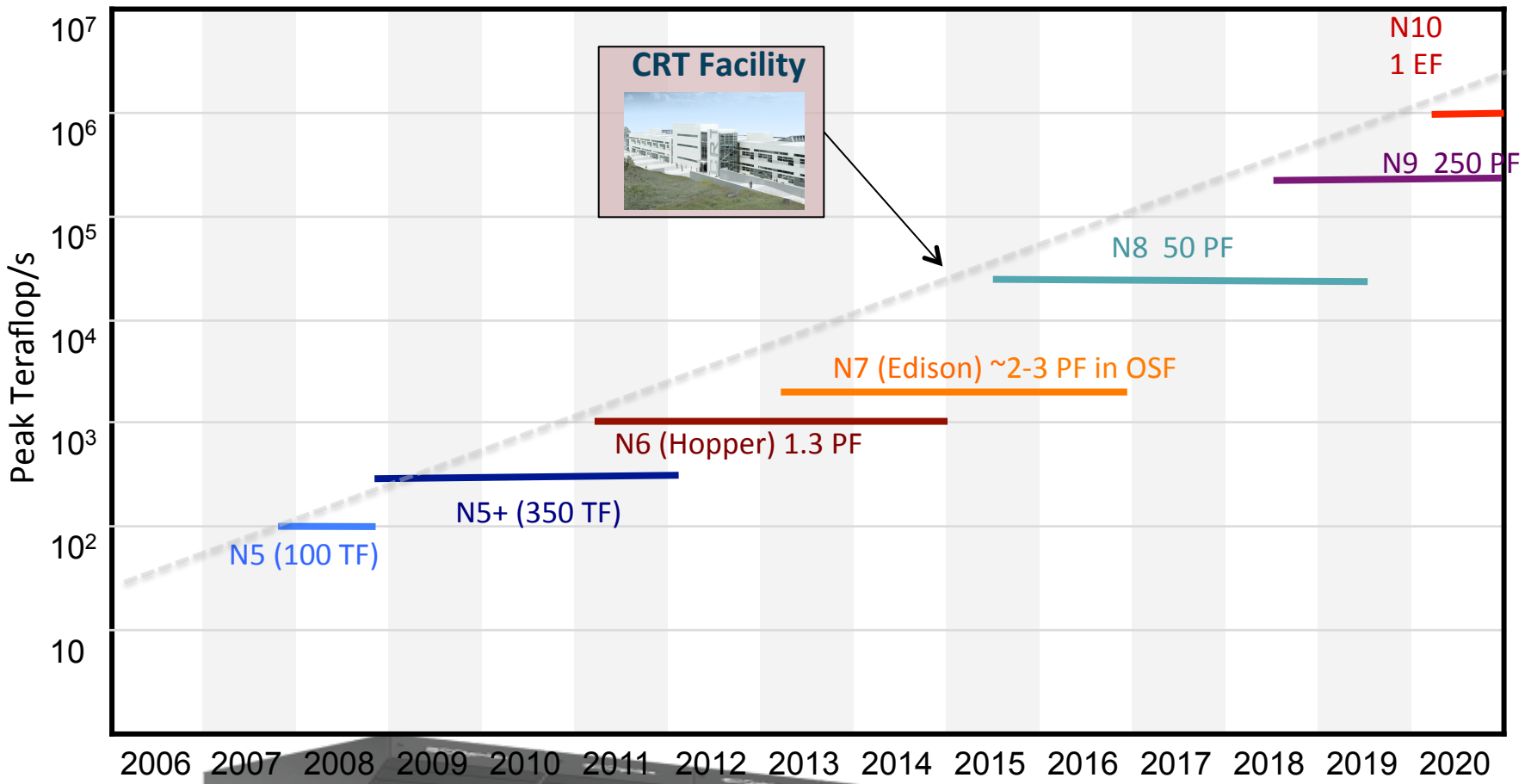
World-Class User Facilities Underpin Today's Berkeley Lab

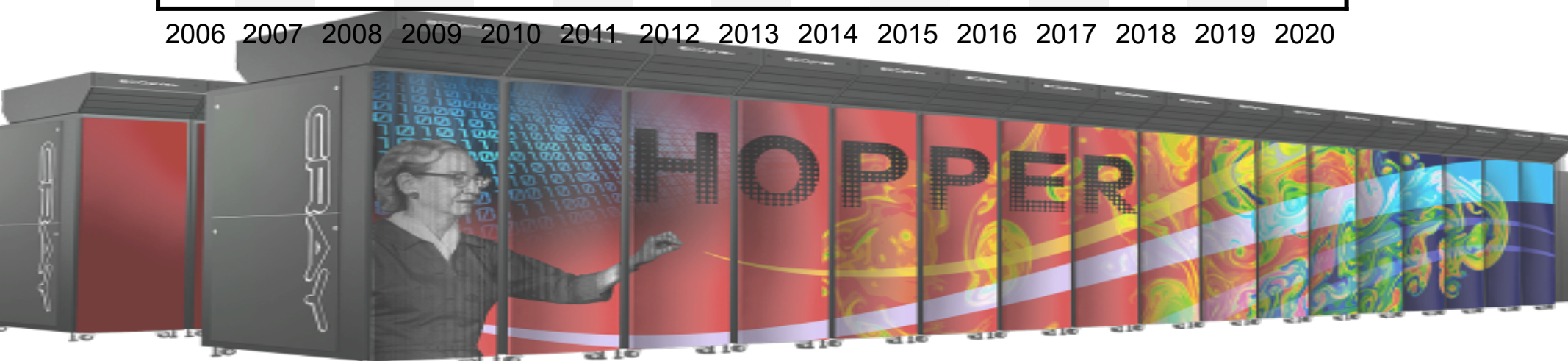
Over 7,000 visiting scientists (~2/3 from universities) use Berkeley Lab research facilities each year

National Energy Research Scientific Computing Center (NERSC)

Hopper - NERSC 6: Cray XE6
153,216 processors
placed number 5 on the November 2010 Top500 Supercomputer list.
5000 users per year publish more than 1500 peer reviewed papers

National Energy Research Scientific Computing Center (NERSC)



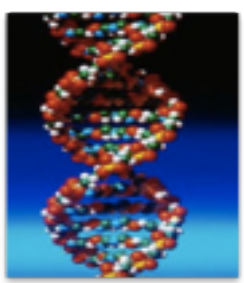


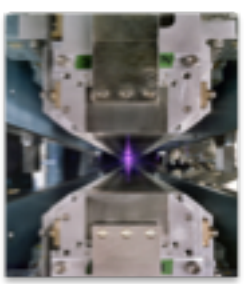
Energy Sciences Network (ESnet)

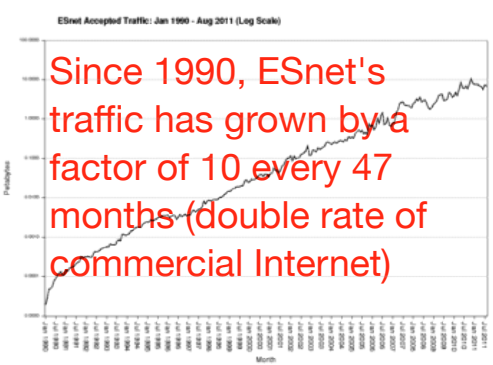
Founded in 1986.

World's fastest science network, connecting 40 DOE labs and facilities with collaborators around the globe.

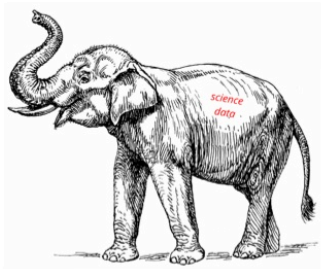
Optimized for ***massive data flows*** generated by scientific communities such as **high energy physics**, **biosciences**, **climate, and photon science.**



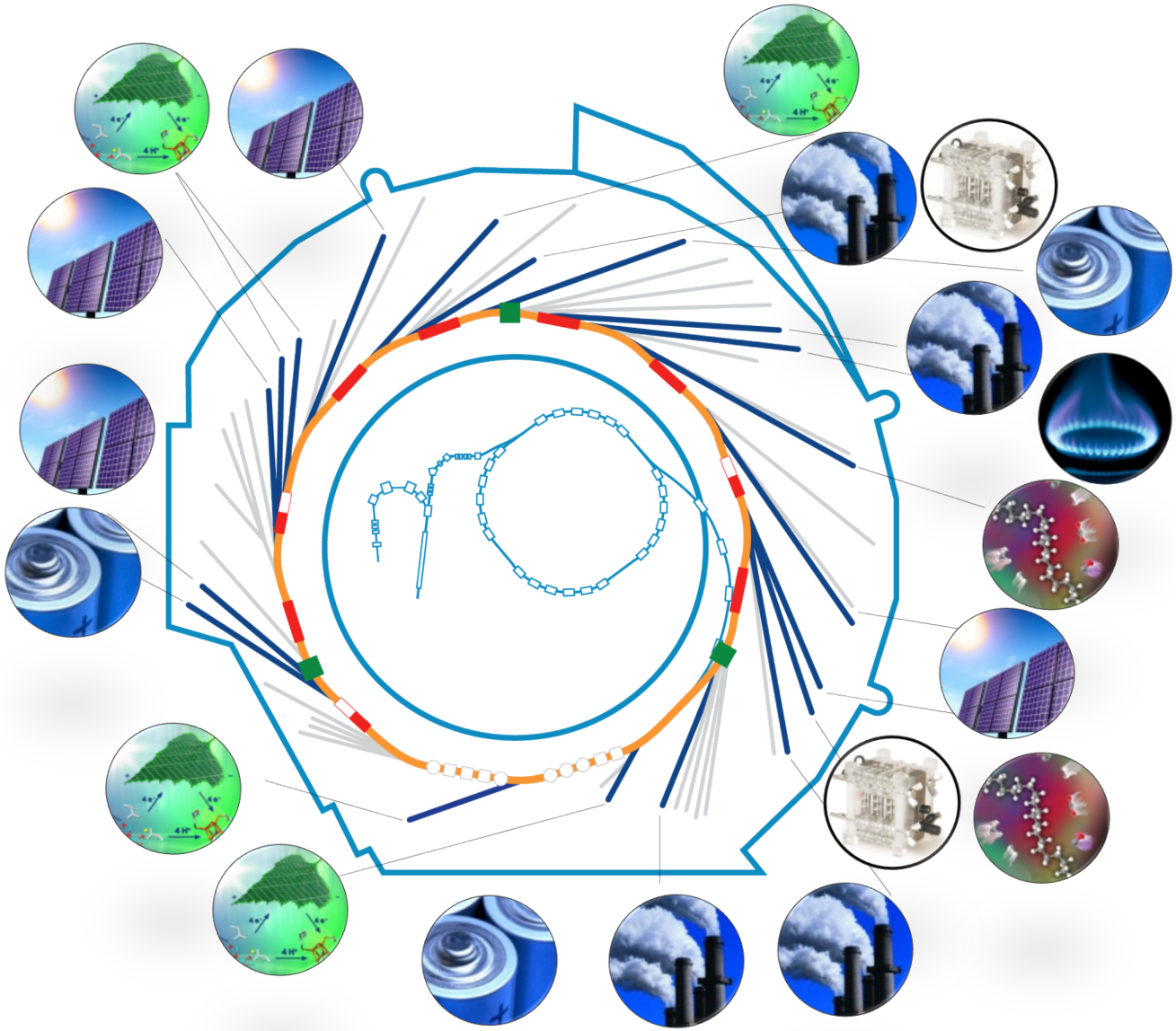




100 Gigabit core, engineered for 'elephant flows'



The Advanced Light Source



Sunlight to electricity

Sunlight to fuel

Batteries

Fuel Cells

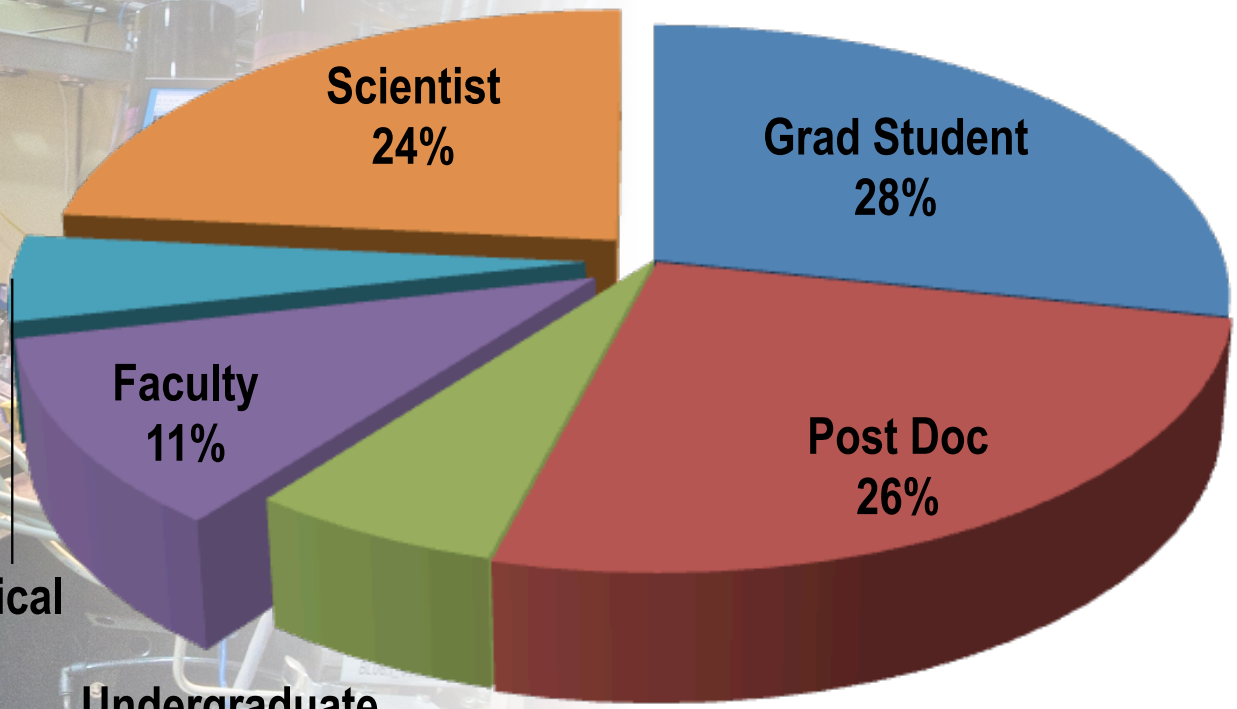
CO_2 Capture & Seq.

Combustion

Catalysis

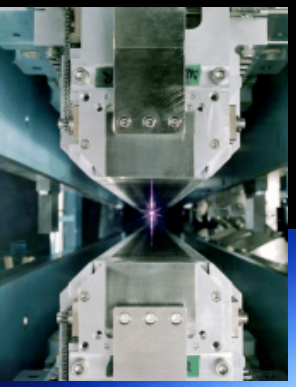
Today's most powerful X-ray microscope for "soft" X-rays, 2000 scientific users per year

Majority of Advanced Light Source activity is part of science education



61% of users are undergrads, graduate students, or postdocs

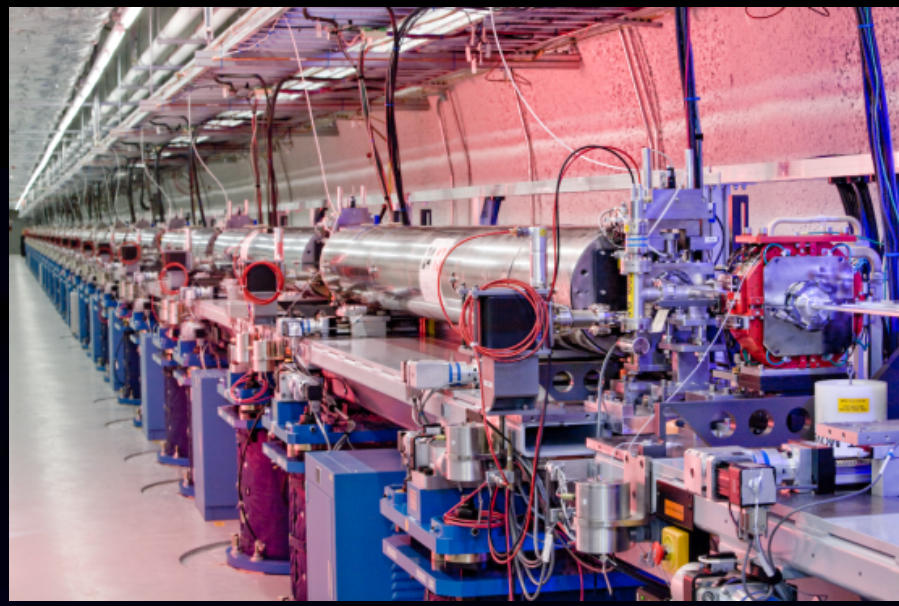
Future Generation Light Sources



BERKELEY LAB

ALS
ADVANCED LIGHT SOURCE

SLAC
LCLS

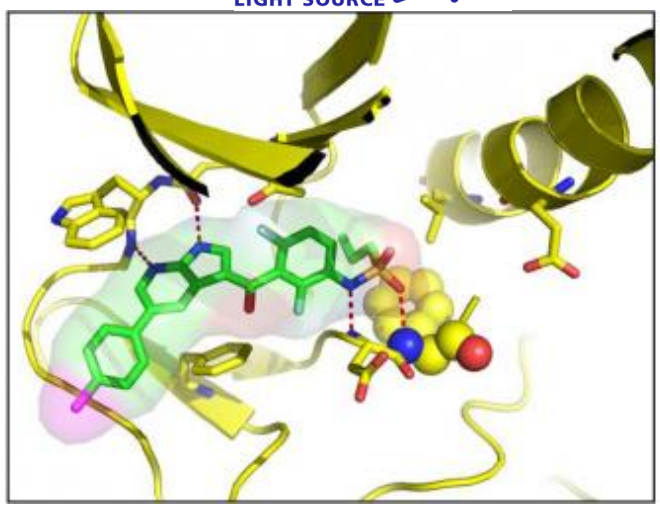


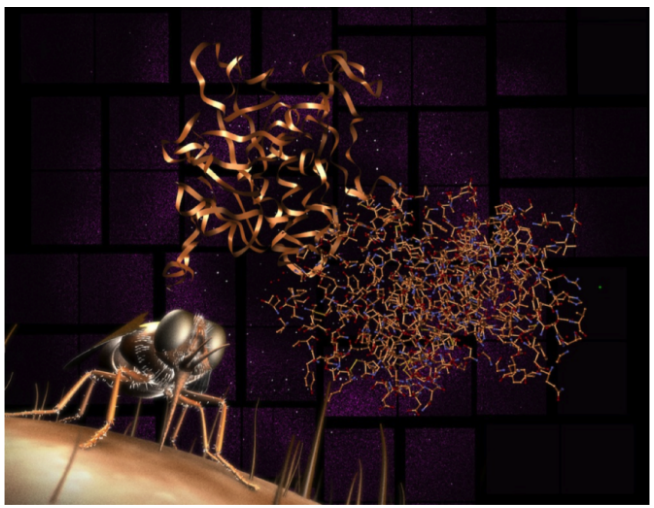
Biology Breakthroughs with Light Sources

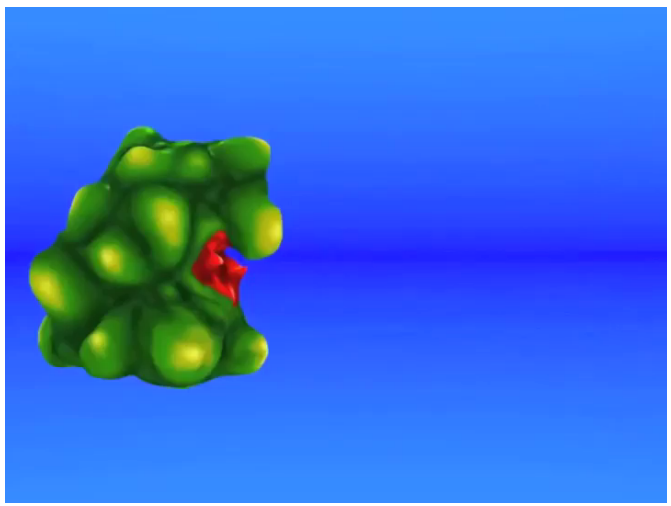
ALS ADVANCED LIGHT SOURCE

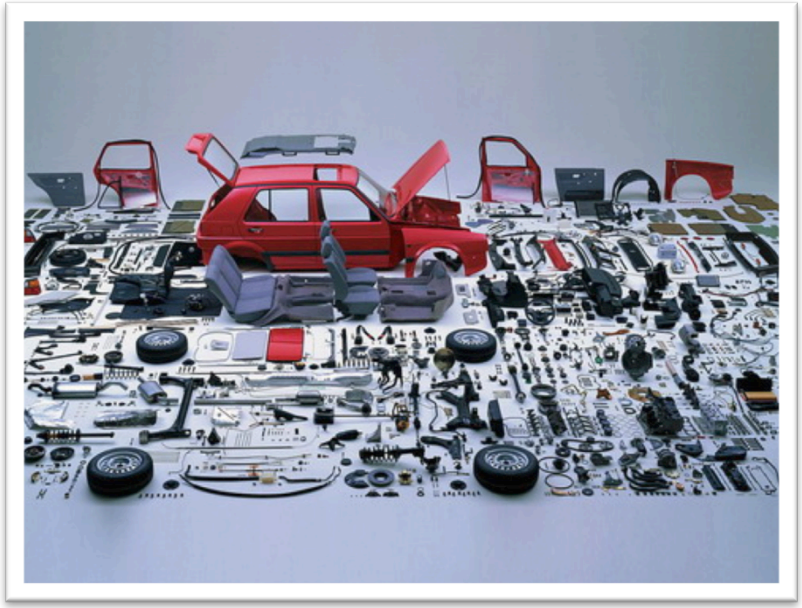
LCLS

?









LBNL spinoffs contribute $904M to Bay Area and $2.8B nationally each year[1]

syrrx
alphabet energy
teselagen
POLYPLUS
ProGDerm
nanomix
nano.com
SEEO
MOMENTA
Quantum Dot
invitrogen nanocrystal technologies
AEROSEAL
Berkeley HeartLab, Inc.
advanced cardiovascular informatics
Morris Research
FLUIGENCE
intelligent microfluidics
LYGOS
neomorphic
GENE LOGIC
Artery Therapeutics
RoseStreet Energy
cargotech
ATI
ARIEL TECHNOLOGIES, INC.
Skin Scan
vsominc.com
view
Adheren
DNA-based Live Cell Patterning
xradia
Interactive Supercomputing
Solexant
SECOND GENOME
THE MICROBIOME COMPANY

[1] CBRE Consulting. 2010. Lawrence Berkeley National Laboratory Economic Impact Study, p.22. http://www.lbl.gov/Community/pdf/CBRE-LBNL-Economic-Impact-Study-Final.pdf (accessed January 11, 2013)