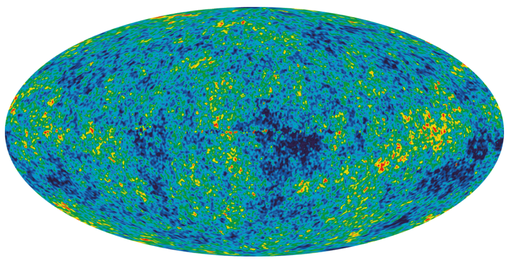
Observational Cosmology Laboratory

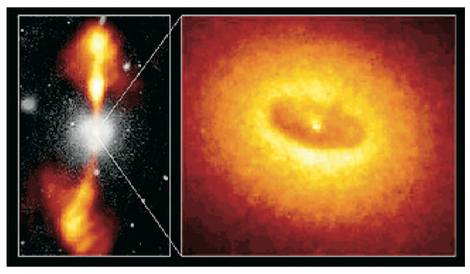
Astrophysics Science Division - Code 665

Studying the origin, evolution, and ultimate fate of the universe

WE ASK:

What powered the Big Bang?
What is the shape of the Universe? What is it composed of?
When and how did the first stars and galaxies form?


Cosmic Microwave Background

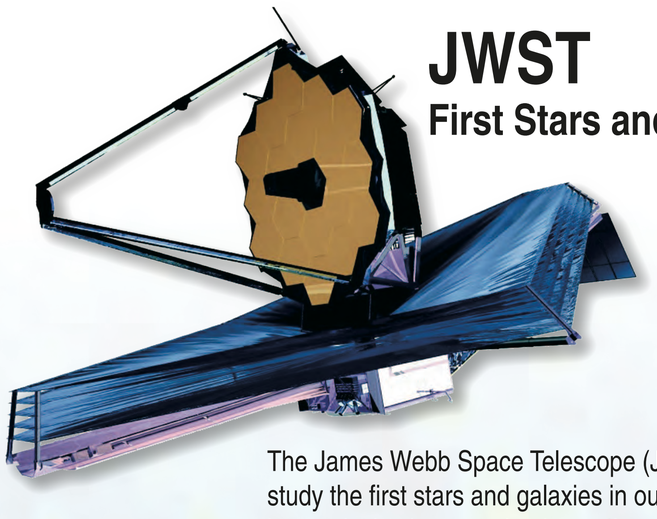

Quasars


Cosmic Dust


Merging Galaxies

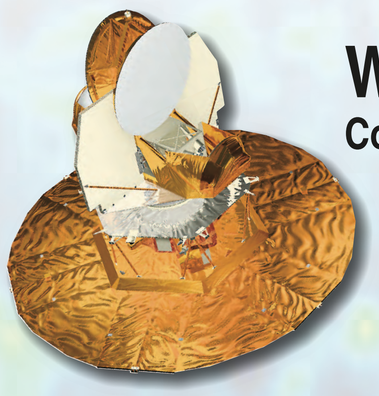
WE USE:

Space Missions



JWST
First Stars and Galaxies

The James Webb Space Telescope (JWST) will allow us to study the first stars and galaxies in our Universe and the how galaxies have evolved over time.



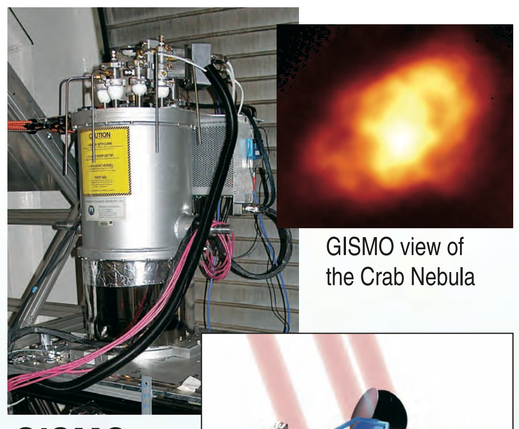
WMAP
Cosmic Microwaves

The Wilkinson Microwave Anisotropy Probe (WMAP) allows us to to survey the Cosmic Microwave Background, the remnant heat from the Big Bang.

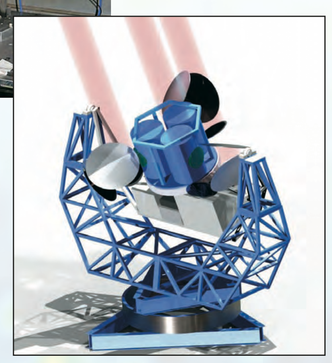
Balloon and Ground Experiments

ARCADE

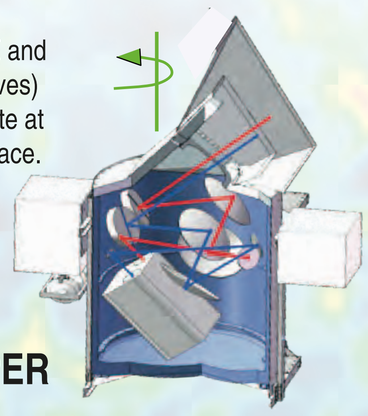
Balloon experiments like ARCADE and PIPER (studying Cosmic Microwaves) allow us to experiment and innovate at lower cost out near the edge of space.


GISMO view of the Crab Nebula

GISMO



CLASS



PIPER

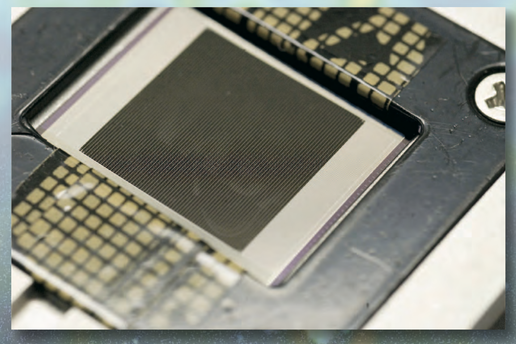
More Space Missions!

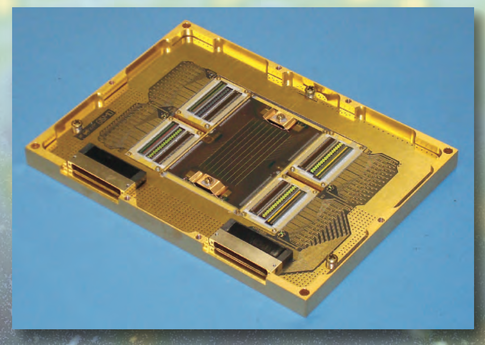
Current:
GALAX
SPITZER

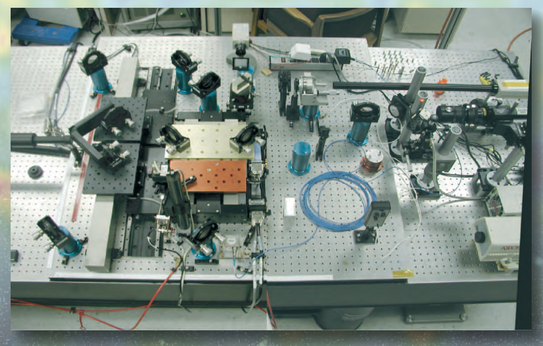
Future:
SOFIA, JDEM, PIXIE
MICROSPEC

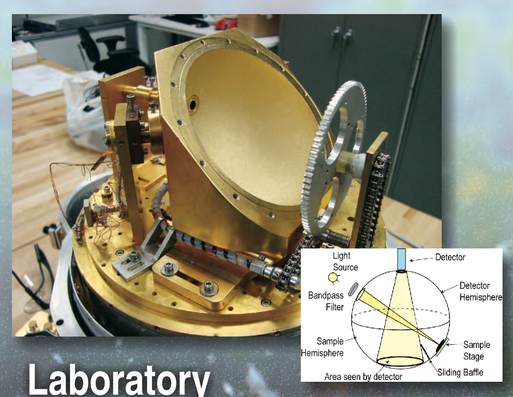
State-of-the-Art Detector and Detection Science

We develop new technologies, build state-of-the-art detectors, use testbeds to pave the way for future space missions, and conduct experiments to understand the nature of Inflation, Gravity Waves, Dust and more, within our universe.


Microshutters for JWST


Infrared Detector Arrays


Wide-field Imaging Interferometry Testbed (WIIT)



Laboratory Astrophysics