## Welcome to the Harvard-Smithsonian Center for Astrophysics

- 1642: Astro in Harvard curriculum
- 1839: Observatory founded (at Lamont)
- 1847: Great Refractor on Observatory Hill
- 1875: Anna Winlock works on star catalogs
- 1890: Williamina Fleming's stellar spectra
- 1905: Henrietta Leavitt discovers the Cepheid relation
- 1920s: Annie Cannon classifies the stars
- 1930s: Cecila Payne discovers stars made of hydrogen
- Today: still a leading astronomy center in the USA
- Astro 145: Topics in Astro
- STAHR astronomy club
- Ask at Science Center about Loomis-Michael telescope
- Intern opportunities
- Junior and senior theses

## CfA Divisions

- Planetary
- $\bullet$  Optical and Infrared
- Solar and Stellar
- Radio
- High Energy
- Theory
- Atomic and Molecular

## **Faculty**

- Bob Kirshner: measuring the size and age of the Universe
- Margaret Geller and John Huchra: mapping the structure of the universe: galaxies and clusters of galaxies
- Fred Whipple: 'Mr. Comet'
- Al Cameron: how planets form
- Dave Latham, Bob Noyes: planets around other stars
- Alyssa Goodman: studying the birth of stars
- Jim Moran and Phil Myers: weighing supermassive black holes
- Owen Gingerich and Barbara Welther: History of astronomy
- Martin Elvis, Belinda Wilkes: evolution of quasars
- Ramesh Narayan, Chris Kochanek: bending light with gravity
- Shadia Habbal: looking at the Sun in ultraviolet
- Sallie Baliunas: Starspots and ice ages
- Andrea Dupree: ultraviolet light from stars
- Christine Jones, Bill Forman: X-rays from galaxies
- Leon Golub: looking at the Sun in X-rays
- Avi Loeb, gamma ray burst remnants
- Lars Hernquist, galaxy dynamics

- George Rybicki, how stuff shines
- Bill Press, computers and physics
- Alex Dalgarno, math with atoms
- Brian Marsden, central command for the universe

## The CfA's Telescopes

- Pat Thaddeus' radio telescope, on the roof
- Paul Horowitz' SETI telescope, Oak Ridge, Massachusetts
- Bob Stefanik's 61-inch, Oak Ridge, MA
- Craig Foltz and John Huchra's Multiple Mirror Telescope, Arizona
- John Huchra's Whipple Observatory, Arizona
- Jim Moran's Submillimeter Array, Hawaii
- Josh Grindlay's EXITE X-ray balloon telescope
- Steve Murray's X-ray camera on the ROSAT satellite, in low orbit
- John Kohl's solar UV camera on SOHO, at the Earth-Sun Lagrange point
- Harvey Tananbaum's Chandra Observatory, launched in July
- Larry Gardner's Spartan solar observatory, back from flying with John Glenn on the Shuttle
- Leon Golub's TRACE satellite, launched 1998
- Gary Melnick's SWAS satellite, launched 1998
- Giovanni Fazio's IR camera on SIRTF