

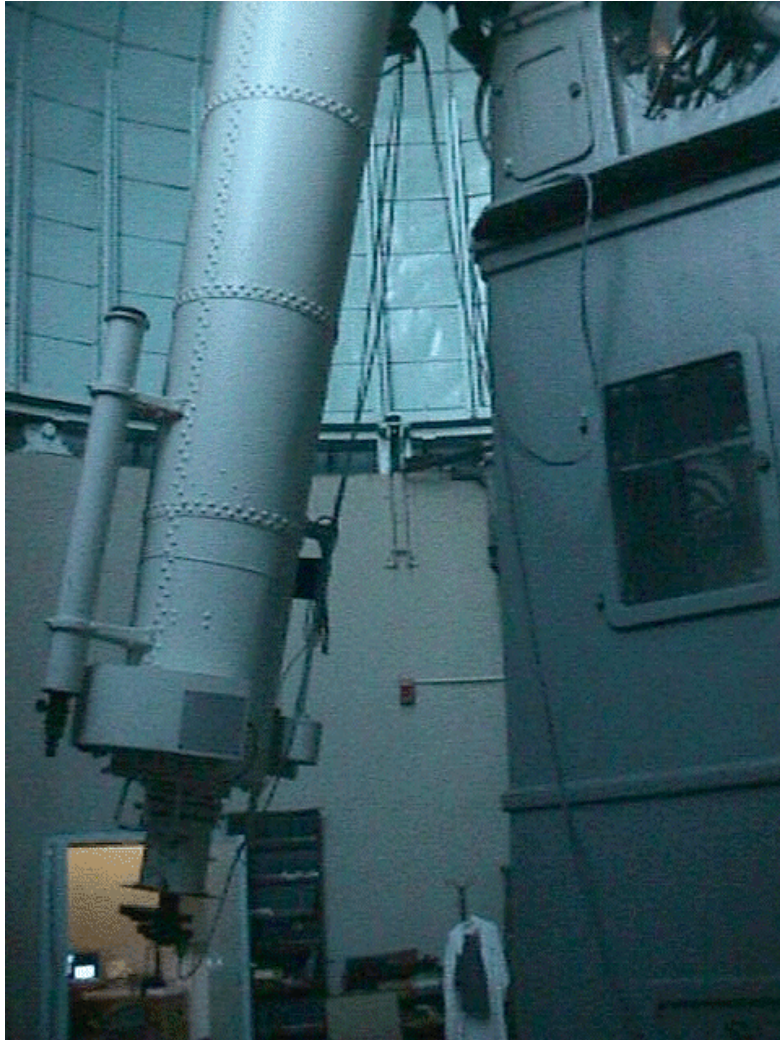
Student-Faculty Astronomy Research at Swarthmore:

Or...doing astronomy research when the Sun is up

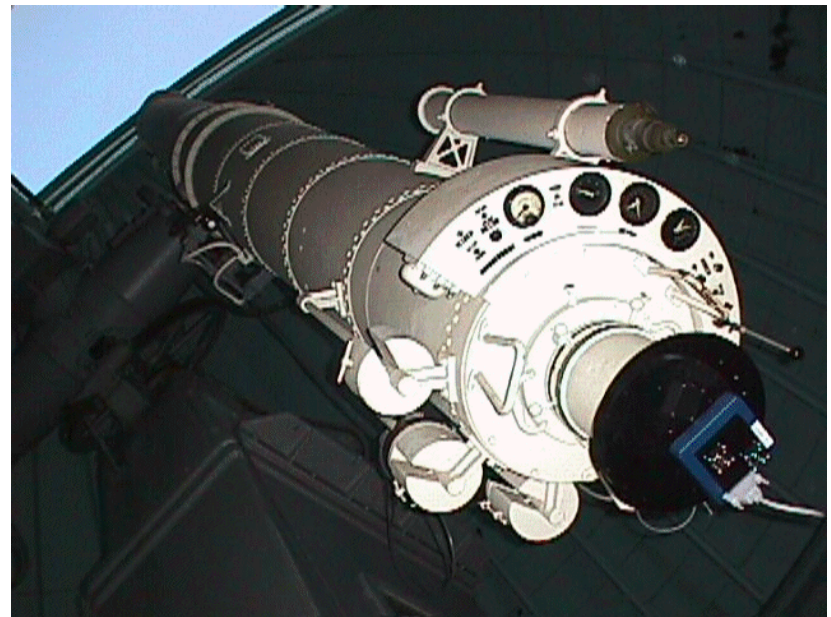
Professor David Cohen
with Victoria Swisher ('06), Micah Walter-
Range ('06), and Steve St. Vincent ('07)

More information about the astronomy program can be found at
astro.swarthmore.edu and information about David's student
research group is available at
astro.swarthmore.edu/~cohen/students.html

The *Sproul Refractor* is still used for public viewing...



And although many important discoveries of 20th Cen. Astronomy were made with this telescope, it is no longer suitable for modern research.



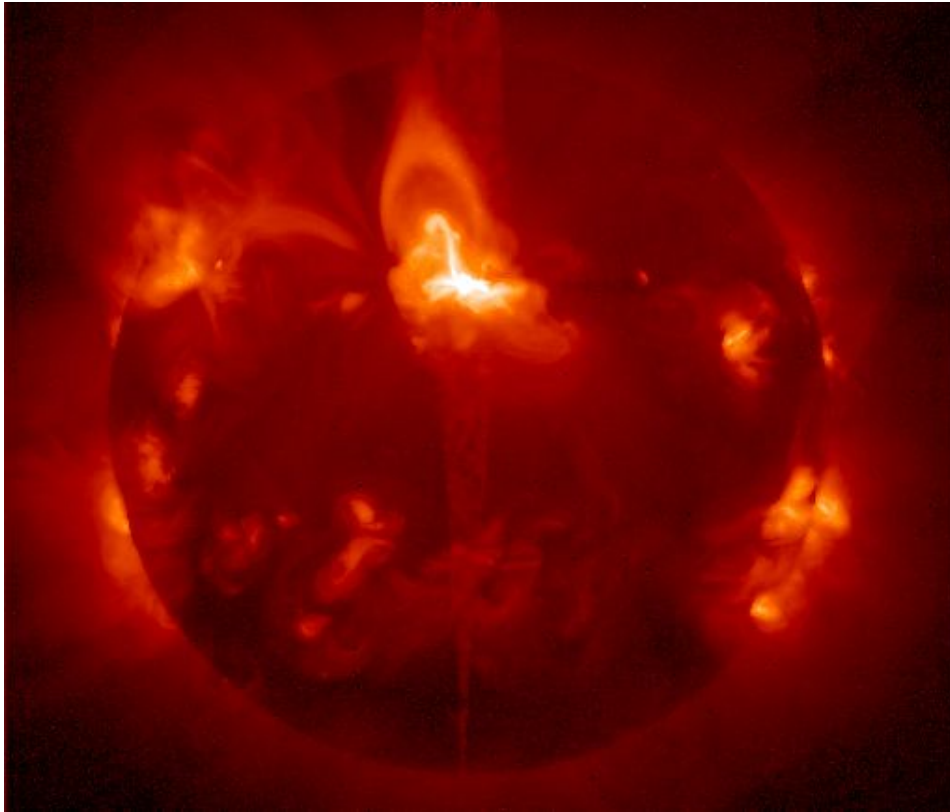
All astronomy research now takes place in the new, integrated *Science Center*



We hope to build a modern 24-inch reflecting telescope on the roof of the Science Center, on which we will perform some of our research and train students for careers in astronomy research.



We currently get all of our data from large observatories on places like Hawai'i (upper left) or from space telescopes, like *Chandra* (upper right)...and all the data analysis is done in our computer labs in the Science Center.



An image of the Sun taken with an X-ray telescope.

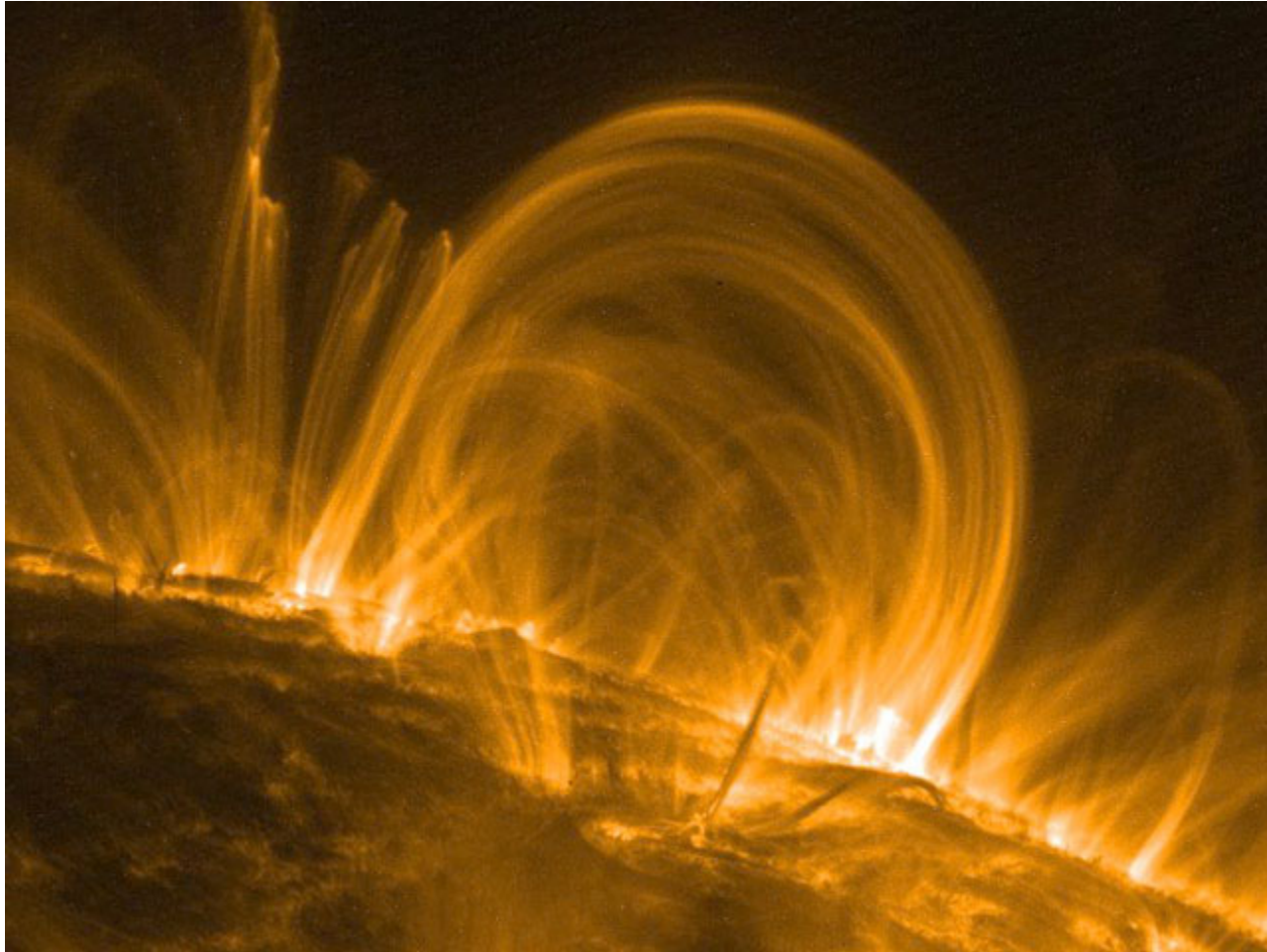
Astronomy at Swarthmore has traditionally focused on stars.

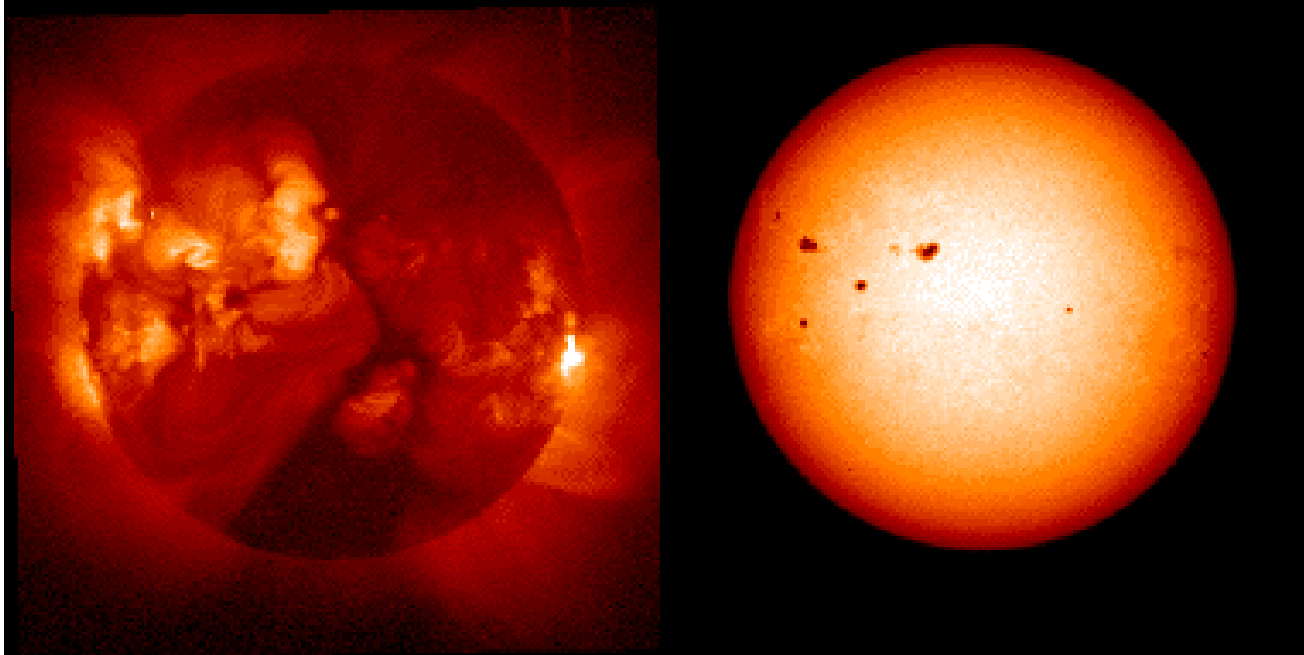
Today that tradition is carried on by **David Cohen**, who studies massive stars and stellar x-rays, and **Eric Jensen**, who studies star and planet formation. Physics professor **Michael Brown** studies magnetic phenomena in his laboratory, with applications to the Sun.

At any given time, we have roughly half-a-dozen students working with us.

The main focus of my research is spectroscopy – analyzing the different colors of light emitted by stars – to figure out how these stars produce the very hot (millions of degree) gas that is required for the emission of x-rays.

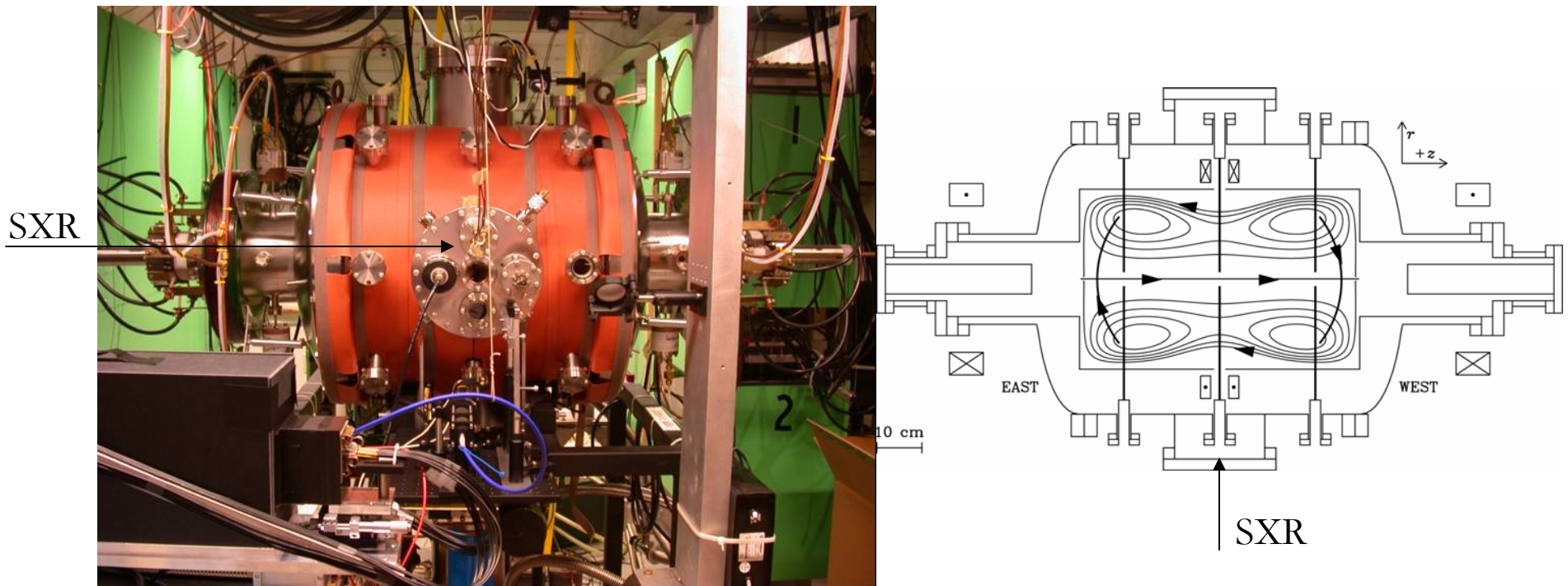
The Sun's x-ray emission is related to magnetic fields on its surface.





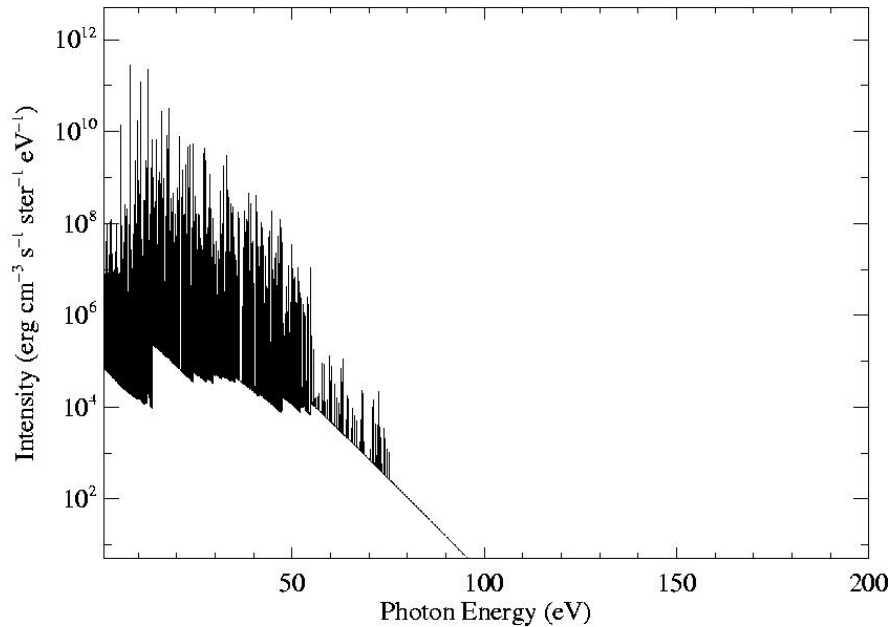
The X-rays and magnetic fields are associated with sunspots.

The SSX and its Soft X-ray Detector

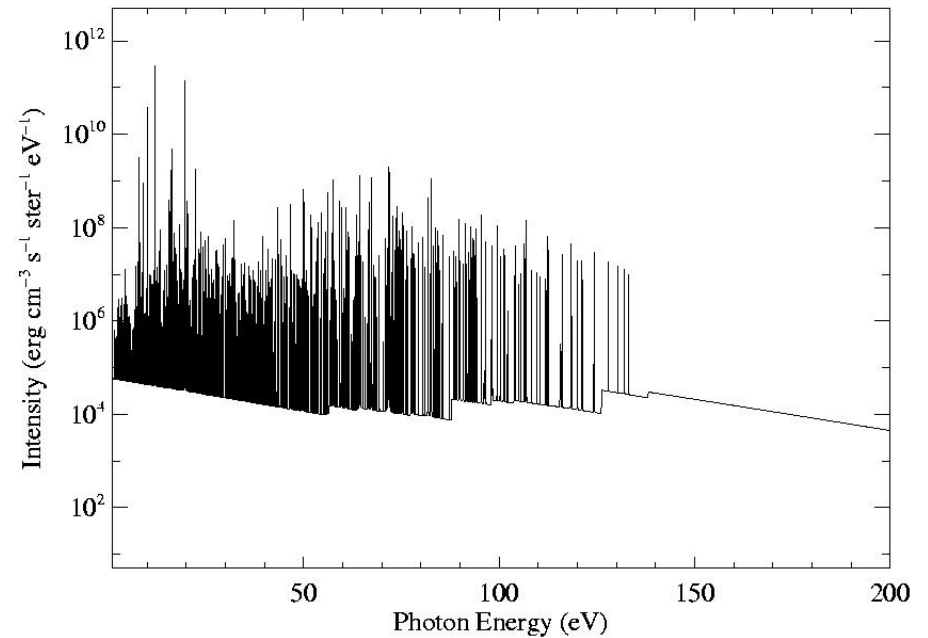


Victoria Swisher ('06) is studying the x-ray emission from the hot, magnetized plasma in Prof. Michael Brown's laboratory.

PrismSPECT Spectra



5 eV spectrum



30 eV spectrum

She is modeling the x-ray emission as a function of photon energy (think “color”) in order to determine the temperature of the hot, magnetized plasma in the experiment.

Victoria’s research webpage has more information:
astro.swarthmore.edu/~vswishel/

Micah Walter-Range ('06) and Steve St. Vincent ('07) are making computer models of the x-ray emitting plasma on some of the most massive and luminous stars in the Galaxy; like the star at the center of the Orion Nebula.



Micah's research page has more information:
astro.swarthmore.edu/~mwalter1/