Gamma-ray astrophysics with the NASA GLAST mission

GLAST is a satellite-based gamma-ray observatory that is scheduled to be launched by NASA May 16 of this year. The UW team, led by Prof. Burnett, has had an important role in the design of the instrument, development of the simulation and analysis software, and soon the analysis of real photon data.

An exciting challenge is to learn how to deal with its vastly superior sensitivity for gamma-ray sources. The poster in the background of the photograph shows the 270 sources that the predecessor instrument, EGRET, detected during its lifetime, 1991-1995. We expect to detect all of these within the first few days in orbit, and anticipate identifying several thousand more. Our group is deeply involved in this: we have developed a source finding and fitting procedure that is much faster, and more sensitive than more traditional approaches, and will use it for population studies and to try to resolve a mystery, the origin of an apparent extragalactic diffuse component discovered by EGRET.

There is an exciting possibility that GLAST will find evidence that the mysterious dark matter is in fact supersymmetric neutralinos, which could be discovered at the same time at the Large Hadron Collider at CERN, also due to start taking data this year.