The Virginia Tech Department of Physics presents the following colloquium:

Dr. Abraham Falcone (Pennsylvania State University)

"Gamma Ray Bursts in the Era of the Swift Observatory: The New Paradigm of High Energy Afterglows"

Abstract:

Swift was launched 2004 November 20. Since that time, the Burst Alert Telescope has detected approximately 2 gamma ray bursts (GRBs) per week, and the pointed instruments, including the X-ray Telescope and the Ultraviolet Optical Telescope, have slewed to a large fraction of these bursts with unprecedented speed. The prompt observation of GRB positions has allowed the X-ray telescope to study GRB afterglows at times that are several orders of magnitude earlier than past observations. Many exciting results have emerged, including X-ray afterglow detections of multiple short-hard bursts, ubiquitous flares at late times (100-10000 s) which imply delayed sporadic internal engine activity (increasing the energy requirements of GRB progenitors), a new canonical afterglow light curve that includes the transition from the prompt emission and multiple breaks in the power law-decay slope, very high redshift afterglow measurements that probe the early Universe, as well as other new results. A summary of these recent observations and their implications will be discussed, with particular emphasis on the emergence of new phenomena in the early X-ray afterglows of long bursts.

The recent construction of the VERITAS TeV gamma ray observatory and its possible scientific impact on GRB and blazar jets will also be briefly discussed.

Friday, Feb. 23, 2007

2:30 P.M.

210 Robeson Hall