

“WHAT ARE WE LEARNING FROM THE GAMMA-RAY SKY?” WORKSHOP SUMMARY

In the Fall of 2013, FTPI sponsored the workshop “What are we learning from the gamma-ray sky?” held in Minneapolis from Thursday, October 10 to Saturday, October 12, 2013. The meeting organizers were Lucy Fortson and Keith Olive.

In the past several years there has been a tremendous amount of activity in opening up this window to the Universe. New data from satellites and ground-based telescopes have led to spectral energy distributions that now include high-quality gamma-ray observations. This in turn has sharpened our ability to formulate theories behind many cosmological and astrophysical phenomena. Important constraints on the extragalactic background light – the total accumulation of starlight over the history of the Universe – has led to a better understanding of the potential contribution of relic particles to the diffuse gamma-ray background and provided unprecedented constraints on the role of heavy dark matter particles in the formation of the first stars. Gamma-ray observations at all scales from the galactic center and sub-halo candidates to clusters of galaxies are an important avenue in constraining dark matter candidates – recent data has shown intriguing hints of an indirect detection.

The main topics covered included:

Compact Objects, Extragalactic Background Light, and the Indirect Detection of Dark Matter. The workshop attracted many of the top researchers in the field (though there were some late cancellations due to the government shut-down which forbid certain people from traveling-even on private funds). The workshop began with overview talks by Joe Silk on dark matter signals, Lars Bergstrom on dark matter structure as seen by gamma rays, and Matthew Wood on the status of dark matter searches by Fermi. More detailed talks on dark matter searches included ones by Martin Pohl from VERITAS and Javier Rico from MAGIC. More speculative dark matter candidates which may be viewed by gamma ray telescopes were delivered by Howard Baer, Yann Mambrini, and Osamu Seto. Additional Fermi talks were supplied by Elliot Bloom and Aldo Morselli. The second half of the workshop concentrated on more general aspects of the gamma ray sky including constraints on the extragalactic background light by Frank Krennrich and the contributions of Blazars by Eileen Meyer. The meeting closed with a discussion of future prospects from new telescopes such as HAWC by Michelle Hui and CTA by Daniel Mazin.

Summary by Keith Olive and Lucy Fortson

Workshop website: <http://www.ftpi.umn.edu/workshops/2013-2014/GRS2013/index.html>