

Stefano Profumo
Physics Department

Stefano Profumo (PhD International School for Advanced Studies, Trieste, Italy, October 2004).

The research interest of Stefano Profumo is particle physics beyond the Standard Model, specifically in connection with models and searches for particle dark matter.

Profumo joined the Department of Physics at UC Santa Cruz in 2007.

Recent research highlights include the study of models of electro-weak baryogenesis, where the baryon asymmetry in the Universe is generated during the electroweak phase transition: the model can be tested with high energy collider experiments, searches for electric dipole moments, dark matter direct and indirect dark matter searches and through gravitational wave detection.

A further topic of research is the search for particle dark matter through multi wavelength studies of extra-galactic objects: the pair annihilation of dark matter particles promptly produces gamma-rays and energetic electrons and positrons. The latter, in turn, give rise to X-ray and radio emissions through Inverse Compton scattering, bremsstrahlung and synchrotron emission, that can lead to the indirect detection of dark matter through astronomical observations.

Stefano Profumo collaborates with members of the GLAST experiment in the context of searches for particle dark matter and new physics with gamma-ray observations. He is also interested in multi wavelength observations that will be triggered by the forthcoming GLAST data. Further, he collaborates with members of the Astronomy department in astronomical searches for dark matter through astronomical observations, specifically X-ray observations of galaxy clusters and local group galaxies.

Profumo was recently offered an Oppenheimer Fellowship from the Los Alamos National Laboratory, a Lawrence Fellowship from the Lawrence Livermore National Laboratory, and a BCCP Fellowship from UC Berkeley. Profumo was recipient of a four-year scholarship at Scuola Normale Superiore, Pisa.