COMPUTER AND INFORMATION SCIENCE

**Open Science Grid (OSG) Tier2 Grid Site at Bellarmine University for the LSST (Large Synoptic Survey Telescope) Project.** RUSSELL SEXTON\*, STEPHEN DENNY, DR. M. SALEEM, and DR. AKHTAR MAHMOOD, Department of Physics, Bellarmine University, Louisville, KY 40205.

Today's cutting-edge large scientific research projects are both CPU and data-intensive that require enormous computing power and large-scale data storage capabilities. Grid computing is the new IT infrastructure for the 21st century large-scale scientific Big Data research. Grid computing provides the resources that allow researchers to share computer processing power and data across boundaries. At Bellarmine University, we have recently upgraded our state-of-the-art Tier3 grid site that is linked to the Open Science Grid (OSG) cyberinfrastructure to a Tier2 grid site dedicated for the LSST (Large Synoptic Survey Telescope) Project. It is currently the only OSG site in the state of Kentucky and the only Tier2 grid site at a predominantly undergraduate institution in the US. The 51-node Tier2 Grid Supercomputer is equipped with 408 cores, 1300GB of RAM and 375TB of disk storage space. We are part of LSST’s Dark Energy Science Collaboration (DESC). The Bellarmine Tier2 supercomputing facility is extensively used to run the Photon Simulator (PhoSim) Monte-Carlo simulation software. We have set up High-Throughput Computing (HTC) environment using HTCondor to queue, submit and run jobs to all the nodes using DAGMan (Directed Acyclic Graph Manager). We are using Globus to manage, share and transfer large amounts of data with our collaborators via GridFTP. We have implemented Ganglia to monitor the various parameters/metrics such as CPU loads and network utilization of all nodes of the Tier2 Grid Supercomputer, including the inbound and outbound data transfer bandwidth.