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South African e-Infrastructure for physics applications

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Physics is one of the most digitally-intensive areas of modern research and has traditionally led the development of tools to increase the efficiency and capability of research activities. The integration of the tools necessary for today's competitive physics research projects, from HPC centres to data resources, metadata catalogues, and services to enable collaboration in virtual organisations has been done to a great extent in South Africa through the activities of the South African National Grid (SAGrid). By forming a collaboration to integrate their various computing facilities through the deployment of a common middleware, the members of the SAGrid Joint Research Unit provide many research communities with an integrated services infrastructure for collaboration. We will give an overview of the grid in South Africa and how it is connected to other regional infrastructure in Europe, North Africa, Latin America and the U.S. We will show how it has enabled the South African physicists working on LHC experiments at CERN (ATLAS and ALICE) to conduct their work irrespective of their location. We will also show some examples of how the grid has enabled collaborative research in areas of physics, and what application porting and user training services are at the disposal of the general research communities. Advanced aspects of the grid middleware, such as data management, workflow, and usage of metadata catalogues will also be presented.

**Level (Hons, MSc,
 PhD, other)?**

other

**Consider for a student
 award (Yes / No)?**

no

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

yes

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