

The future of computing comes to Queen Mary

Queen Mary hosted the annual meeting of the GridPP project in June – a gathering of top physicists and computer scientists who are developing the next generation of computing.

These scientists are a part of an international effort to build a global computing Grid which connects the world's computers and shares their computing resources. The College is actively involved in the project – both the Events Officer and the Dissemination Officer are based at the College, and Professor Steve Lloyd from the Department of Physics, Chairs the project.

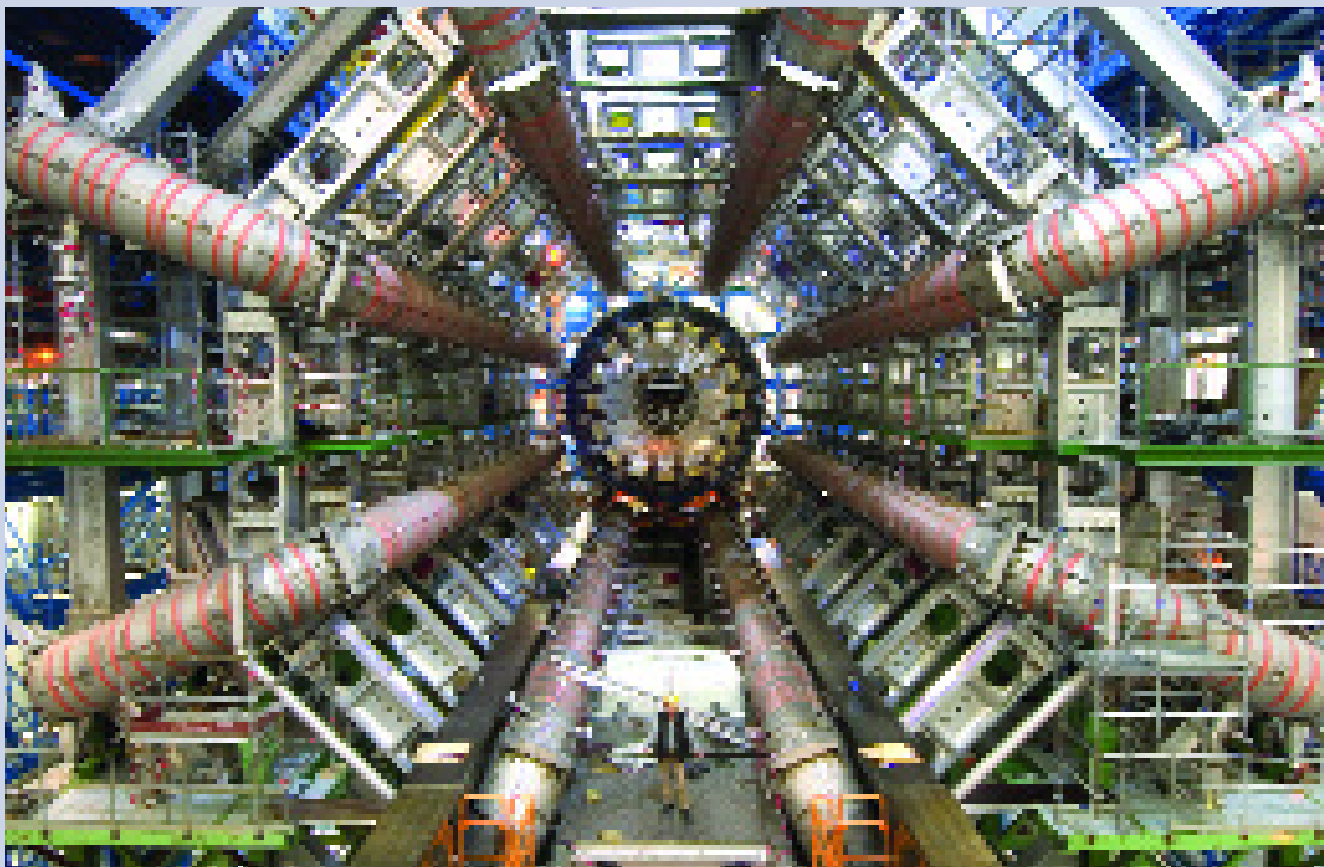
'Grid computing' harnesses the power of computers worldwide to tackle complex problems. Like the Worldwide Web before it, the Grid is being driven by scientists' needs. The web was designed at the world's largest particle physics laboratory, CERN in Switzerland, to facilitate better communication between scientists around the world. The Grid is also

being driven by another big CERN project – the need to analyse the huge volumes of data that will come from a new breed of particle accelerator.

In 2007, CERN will introduce its Large Hadron Collider (LHC); the world's largest ever particle accelerator. The LHC will allow scientists to penetrate further into the structure of matter and recreate the conditions prevailing in the early universe, just after the Big Bang, changing the way we understand the laws underpinning the universe and the nature of our existence. But the four experiments at the LHC will produce more data than any previous coordinated human endeavour – more than 15 Petabytes each year – equivalent to a stack of CDs three times the height of Mount Everest.

Unsurprisingly, all this data means that the LHC needs more computing resources than one country can provide, let alone one institution. To manage this, researchers are creating a Grid to distribute the processing and storage of data around the world. The LHC Computing Grid (LCG) already includes more 20,000 computers spread across nearly 40 countries, and as such is the world's largest Grid.

Queen Mary is one of the sites in GridPP and is a part of the group of London sites called the London Tier-2. As well as Queen Mary's direct contribution to the Grid, researchers in the Physics department are involved with two of the largest experiments to use the Grid – the ATLAS and BaBar projects.



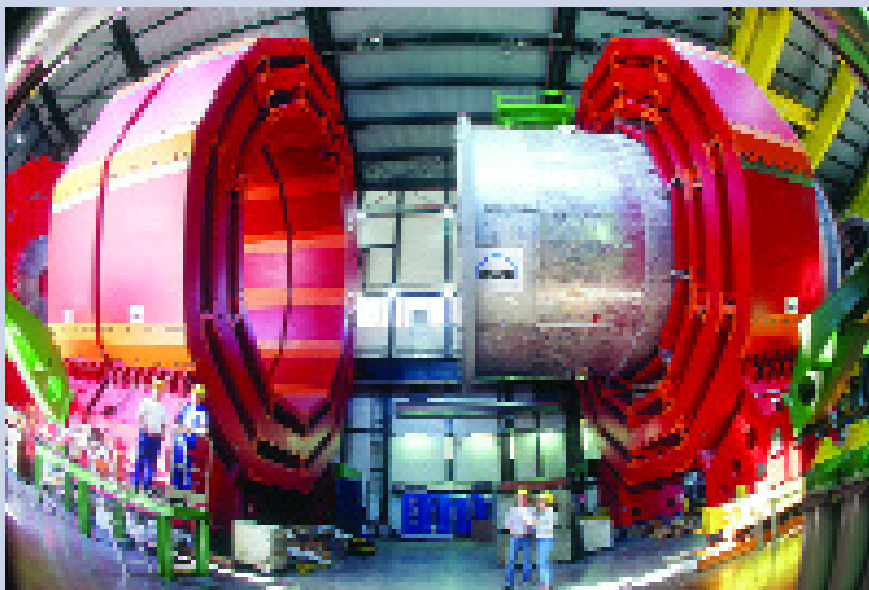
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The latest GridPP meeting was formally opened by Queen Mary's Vice-Principal for Science and Engineering, Professor Ursula Martin. More than 100 scientists from 20 institutions across the UK discussed issues including how to successfully install and manage computing at Grid sites, how to run scientific programmes on the Grid, and the future of the particle physics Grid in the UK.

Professor Tony Doyle, GridPP's Project Leader, was delighted at how well the meeting went. "We'd like to thank the particle physics group here at Queen Mary for their outstanding organisational work and for hosting an excellent meeting," he said. "It was clear in visiting the computing facilities at Queen Mary that their outstanding success in terms of recent delivery on the Grid was due to excellent organisation and management of the shared computing facility."

The name 'Grid' comes from analogy with the National Grid. Users can obtain a resource such as electricity, or in this case, computer processing, from a variety of sources to supply their needs, without needing to know where it comes from. This means that a scientist in London, for example, can request data from CERN in Switzerland and send it to be analysed on the Grid. It can then be processed on computers at nearly 200 sites globally, from Budapest to Illinois, and the results will be sent back to the scientist in London. In effect the Grid is trying to create a super computer that spans the entire planet.

For more information see www.gridpp.ac.uk



The CMS detector, one of the four detectors which will use the Accelerator



From left to right: Professor Steve Lloyd, Professor of Experimental Particle Physics at Queen Mary; GridPP Collaboration Board Chairman Dr Terry Arter, Physics Department Systems manager; Dr Guiseppe Mazza, GridPP Systems Administrator and Dr Alex Martin, Project Manager for the eScience Cluster