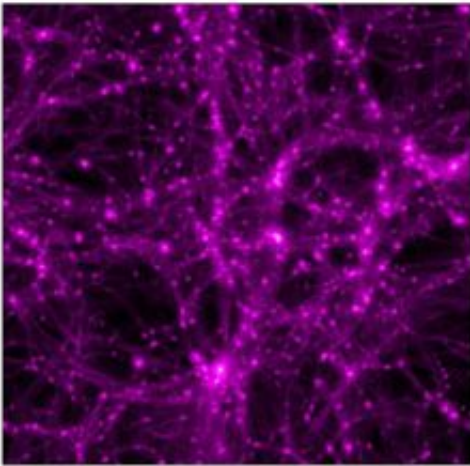


Cosmologists explore Universe with new supercomputer

February 2 2011



The supercomputer will produce simulations with 60 times the detail of the image above, which is a simulation of a huge region of the Universe.

A supercomputer capable of doing a billion calculations each second has been installed at the University of Portsmouth, enabling cosmologists to test our understanding of the origin of galaxies and of gravity itself.

The supercomputer, called 'SCIAMA', has a 1008 Intel core cluster, which represents the equivalent strength of approximately 1000 desktop systems, and is designed to receive, process and present large amounts of astronomical data very quickly.

Researchers at the University's Institute of Cosmology and Gravitation (ICG) will use the supercomputer to simulate vast regions of the Universe, investigate the properties of hundreds of millions of [galaxies](#) and solve complex cosmological problems.

Gary Burton, ICG's Senior Specialist Technician, will be responsible for managing the supercomputer. He said: "SCIAMA is a cluster of computers linked together to make a far more powerful machine. It can do a billion calculations each second and follow the movement of billions of particles in a simulation.

"The huge power of a supercomputer like SCIAMA is necessary to deal with the vast amount of observational data coming from satellites, telescopes and other detectors. Using it will allow us to explore the whole of cosmic history and analyse data that contains fundamental clues about the origins of the Universe."

Lado Samushia, a researcher at the ICG, said: "What would take me 20 days to calculate I can now do in four hours. I am very excited; this is a huge timesaver, which will make a drastic difference to my research."

The supercomputer was named SCIAMA after Dennis Sciama, a leading figure internationally in the development of astrophysics and cosmology. The acronym also stands for SEPnet Computing Infrastructure for Astrophysical Modelling and Analysis.

Senior Research Fellow, Dr David Bacon, said: "We're absolutely thrilled to have SCIAMA located here in Portsmouth. The Institute of Cosmology is in a great position to use this [supercomputer](#) to make real breakthroughs in understanding the [Universe](#) – both by analysing the very latest astronomical observations, and by calculating the consequences of mind-boggling new theories.

SCIAMA has been designed and supplied by Dell, in association with Alces Software. It will be housed in a University computer room, where researchers can access it remotely from their laptops or PCs.

The installation of the computer has been jointly funded by the South East Physics Network (SEPNet), the Higher Education Funding Council for England (HEFCE) and the University of Portsmouth. In addition to being used by [cosmologists](#) at the University, users at all SEPNet astronomy departments will also have access.

Provided by University of Portsmouth

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