

# Oxford e-Research Centre (OeRC)

*Innovative technology for multi-disciplinary research*

## Welcome to the OeRC

The Oxford e-Research Centre (OeRC) works with research units across the whole of Oxford University to enable the use and development of innovative computational and information technology in multidisciplinary collaborations, realizing new opportunities through e-Research.

The OeRC brings together teams from different departments to tackle today's research challenges. Many of these challenges require the use of high speed networks, high-performance computing, data management and curation, and visualization.

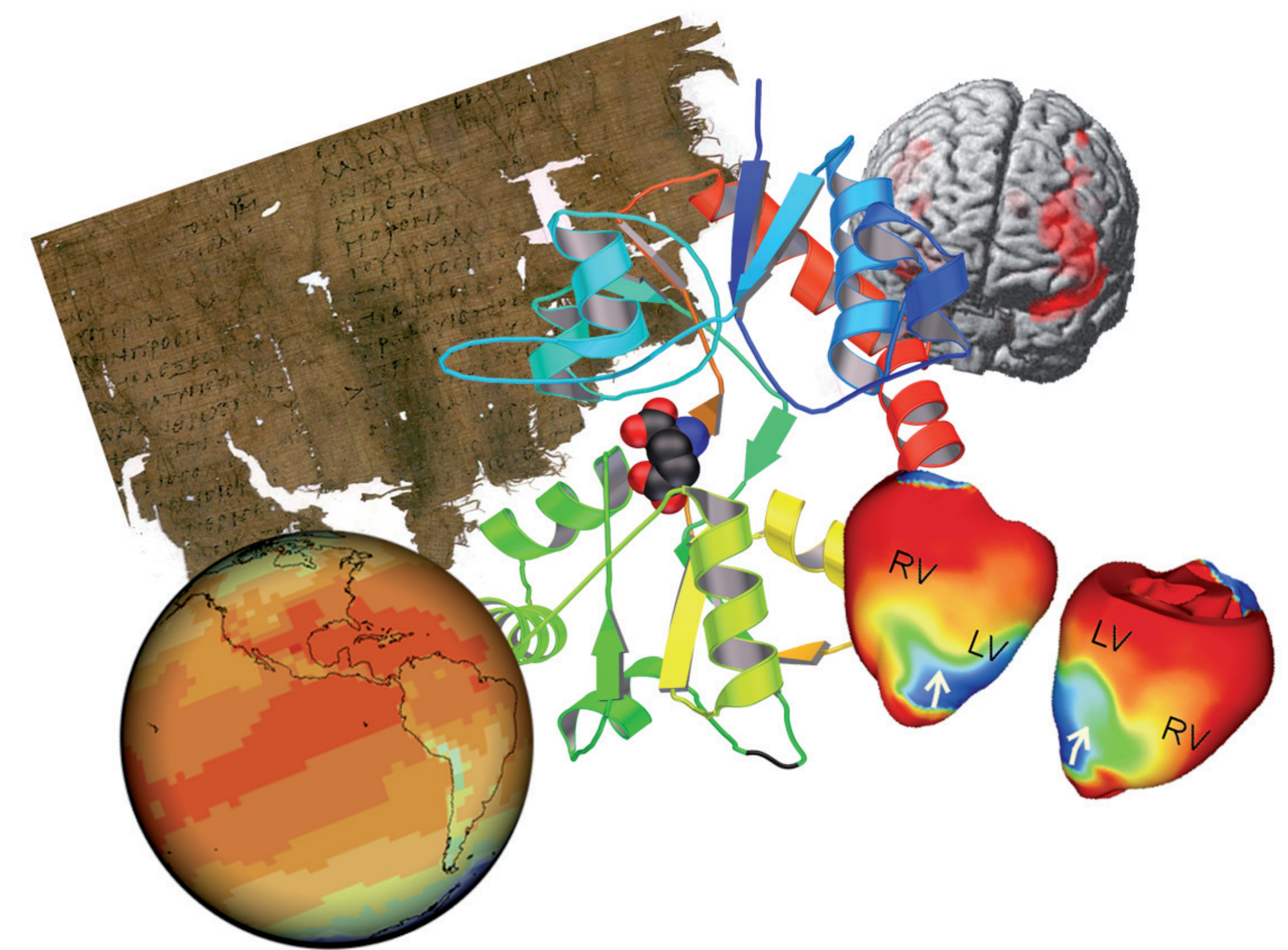
With a core staff of researchers, developers and support staff the OeRC operates as a hub for e-Research activities across the University, facilitating the development of an appropriate e-infrastructure for research and building a community around e-Research at Oxford. The Centre is strongly linked to the UK's national e-Science programme, while national and international collaborations will ensure that activities here at Oxford are aligned with e-infrastructure developments nationwide and abroad.

## Using technology to break down research boundaries...

e-Research builds on the symbiosis between scholarship and technology, creating new technologies and research infrastructure and thereby providing access to a broader range of resources including databases, high-performance computers, people, and experimental and observational equipment. This brings with it huge social, legal and ethical challenges as well as technical ones, some of which are being considered by Oxford's **e-Horizons Institute** and **e-Social Science Project**.

The OeRC is involved in a wide selection of projects covering the sciences, social sciences, humanities and arts, including collaborations both nationally and internationally.

Examples range from the **Integrative Biology** project, which hopes to provide insight into heart disease and cancer (which together account for 60% of UK deaths) to the development of a virtual research environment aiming to meet the needs of the University's Humanities division. Oxford research also covers infrastructure development and deployment.



**“ One of my research projects is focused on simulation of the quantum dynamics of correlated electrons in a laser field. OxGrid made serious computational power easily available and was crucial for making the simulating algorithm work. ”**

*Dr Dmitrii Shalashilin (Theoretical Chemistry)*

## A commitment to the future

The University of Oxford and the OeRC are committed to the future of e-Research and the OeRC has recently moved into the new **e-Science Building**. This houses the OeRC, the Oxford Software Engineering & Requirements Research Group (<http://web.comlab.ox.ac.uk/louclresearch/areas/softeng/>) and the Doctoral Training Centres (<http://www.lsi.ox.ac.uk>). Together these activities provide a vibrant interdisciplinary community.

To learn about the OeRC, see details of the projects we are involved with and to find contact details please visit our website at

**<http://www.oerc.ox.ac.uk>**

or email [info@oerc.ox.ac.uk](mailto:info@oerc.ox.ac.uk)

## Developing the research fabric

Not only in the sciences but increasingly in the humanities and social sciences, researchers need significant computing resources for simulation or data analysis and supporting infrastructure to enable data management and visualization of results. As a result the computation and data storage needs of researchers at Oxford have increased dramatically in the last five years.

The OeRC are building and supporting computational infrastructure through the **Oxford Supercomputing Centre (OSC)** and **OxGrid**. OSC offers a range of high performance computers for users with high-end needs - fast interconnect and new machine architectures - while OxGrid brings together computers from across the University to provide a pool of computational resource for large parameter sweep type applications.

OxGrid also provides an interface to the **UK National Grid Service**, one quarter of which is hosted at the OeRC.



*The new e-Science Building opened in early 2007*

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