The Physics Building

The dawning of a new era, in new surroundings

UNIVERSITY OF OXFORD

In order to fulfil their potential, Oxford's world-class physicists need facilities that match their ability and reputation. Precision experiments on the atomic scale, performed in university laboratories, will lead to momentous advances while crucial new ideas will be generated by spontaneous meetings of minds. The new Physics Building represents the first phase of the New Clarendon Laboratory project and has been carefully designed to nurture delicate experimentation and robust theoretical discussion within a single centre of excellence... but it has yet to be built.

Architect's impression of the new Physics building

Through its outstanding researchers, the University of Oxford is making discoveries that will change our world. And through support for the new Physics Building, you too can contribute to these next great breakthroughs – in theoretical physics, condensed matter systems, quantum optics, and electron and atomic force microscopy.

At Oxford teams of theoretical physicists are working on mathematical models to answer some of today's most exciting questions:

Why is gravity so different from the other forces of nature?

What is the dark matter and dark energy detected by observational cosmologists?

Can we 'invent' new forms of materials with novel and useful properties – just as the quantum theory of solids once led to the invention of semiconductors?

How do galaxies form and what implications does this have for our own? How do viruses and DNA structures self-assemble?

Oxford's condensed matter physicists are devising, building and carrying out experiments to penetrate further mysteries of nature:

Can we create fundamentally new states, where matter and light are mingled?

Is it possible to build cheap and efficient solar cells to power our future energy needs?

Can electrical current be transported without resistance – by so-called superconductors – at room temperature?

Is there a practical way to build a quantum computer?

Time and space to explore

Oxford's outstanding people will only find the answers to these questions if they are provided with the right environment. Experimentalists need clean, quiet, vibration-free laboratories – ideally underground – in order to achieve the high degree of precision required by modern science.

Meanwhile, Oxford's theoretical physicists need space in which to interact – rather than the historic yet inadequate old buildings with narrow, dark corridors and tiny offices to which they are currently confined.

Most important of all, theoreticians and experimentalists need to bounce questions, answers and ideas off each other. This is the thinking behind the design of the proposed new Physics Building.

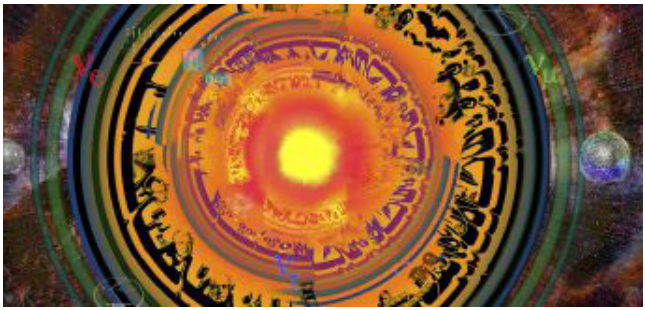
What will the new Physics Building achieve?

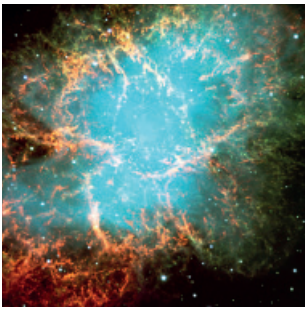
The new building is the first step towards reuniting Oxford's world-class physics community on one site within the University's famous Science Area. A bridge will link the new building to the front of the existing Clarendon Laboratory ensuring a fully integrated complex.

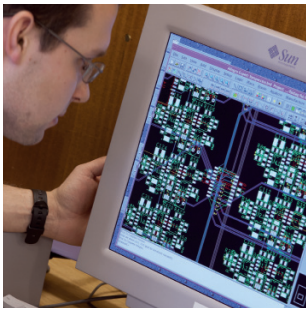
Above ground, the bright communal atrium containing interlinked meeting areas for group discussions will be surrounded by offices for quiet concentrated work. For the first time in Oxford's history theorists will inhabit an environment conducive to their intensive and collaborative methods of working.

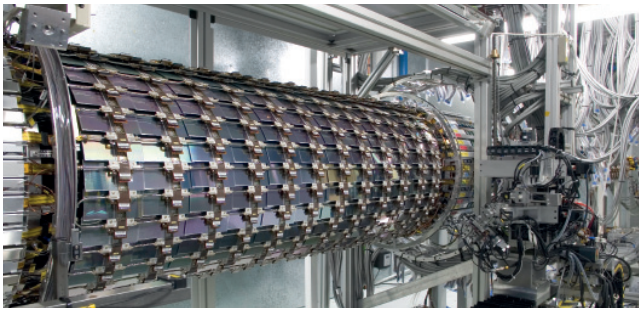
In the basement below, state-of-the-art laboratories will enable long-awaited experiments to become a reality. The vital creative interaction between theorists and experimentalists will be stimulated by shared entrances and informal meeting areas.

The inspiring surroundings of the new facilities will not only enable current Oxford scientists to pursue their goals; they will also attract and nurture new talent at all levels – from first-year postgraduates to leading professors in the field.









How can you contribute?

Whether you are an alumna, alumnus or simply have a passion for physics; whether you represent a foundation that supports research or a company that benefits directly from physics and physicists, or whether your potential for giving is large or small, your donation can make an impact. Visit www.giving.ox.ac.uk/physics to find out more.

Together we can turn the architects' plans for the new Physics Building into a magnificent centre for a new age of physics. We can ensure that the great discoveries of the 21st century are made at Oxford. Join us in the ultimate scientific collaboration.

For more information see www.physics.ox.ac.uk or email contact@physics.ox.ac.uk or alumni@physics.ox.ac.uk.

A look inside the new Physics building:

Offices and communal atrium above ground

State-of-the-art laboratories below ground

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