What is GCRF-START?

GCRF-START – is a project that brings together research partners from Africa and the UK.

Building collaborations between researchers in structural biology and energy materials from Africa and the UK will help to provide insights into diseases and ways to understand energy materials through the use of synchrotron techniques.

The GCRF-START project aims to build capacity and capability, building knowledge in research techniques using the UK synchrotron, Diamond Light Source. START will help investigators to build enduring research connections in synchrotron science.

GCRF-START will enable valuable insights into the structure of proteins related to disease and deepen the understanding of how energy materials can be developed to improve efficiency or to limit degradation.

GCRF-START is funded by the Global Challenges Research Fund (GCRF) through the UK’s Science Technology Facilities Council (STFC).

Want to know more?

Researchers working on research supported by GCRF-START are keen to share their findings as they make new discoveries. You will find more information on the GCRF-START website: www.START-project.org

Researchers

If you are a researcher, academic or someone interested in the outcomes of GCRF-START or are interested in joining the project then please contact us through the START website or email address.

Email: GCRF_START@diamond.ac.uk

Synchrotron Techniques for African Research and Technology

Visit our website:
www.START-project.org
Find out more:
GCRF_START@diamond.ac.uk
What does GCRF-START do?

The GCRF-START project is focused around exploiting synchrotron science at Diamond Light Source in the UK. It will provide African researchers with access to a large scale research facility and collaborations with expert staff to enable them to make use of powerful techniques to understand their samples in greater detail.

The project works to
- Encourage and foster existing and new research collaborations
- Support early career scientists in developing their experience of synchrotron science
- Build links to key African Non-Governmental Organisations (NGOs)
- Discover new ways of treating diseases
- Reach a diverse community of scientists, industry and the public
- Build synchrotron science expertise in Africa

ENERGY MATERIALS

START researchers will investigate Energy Materials, of relevance to solar cells, battery research and the development of catalysts.

"Being able to access the unique techniques offered by a synchrotron like Diamond is a step change for us in skills development as well as an opportunity to compete with our science on a world stage".

Prof. Dave Billing, the University of Witwatersrand

GCRF-START will help Energy Materials research by
- Developing Energy Materials
- Aiming to improve photovoltaics, batteries (energy storage) and catalysts
- Understanding solid structures and thin films
- Testing materials in challenging environments

Synchrotron techniques in Energy Materials
- X-ray powder diffraction (XRD)
- Surface X-ray Diffraction (SXRD)
- Spectroscopy
- X-ray reflectivity (XRR)
- Grazing Incidence Wide-angle X-ray Scattering (GIWAXS)

STRUCTURAL BIOLOGY

GCRF-START collaborations will allow partners to better understand drug targets and cure diseases relevant to Africa. African-UK partnerships in Structural Biology research are instrumental in understanding diseases such as HIV-AIDS, malaria, tuberculosis, and African horse sickness that are devastating to human and animal populations.

GCRF-START will help Structural Biology by
- Addressing fundamental problems in diseases
- Understanding protein structures
- Working in pharmaceutical development
- Developing biotechnology

Synchrotron techniques used in the Life Sciences
- Crystallography
- Cryo-electron microscopy
- Biological Small Angle X-ray Scattering (BioSAXS)
- Fragment Screening
- Cell imaging
- Circular Dichroism & Infrared (CD & IR)