THE UNIVERSITY OF NEWCASTLE AUSTRALIA

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PRIORITY RESEARCH CENTRE FOR ENERGY

Clean Coal | Renewable Energy | Transportation Fuels and Energy Conversion | Energy and the Environment

A LEADER IN RESEARCH

The University of Newcastle consistently ranks in the top 10 research higher education institutions in Australia. World-class facilities and talent, teamed with forward-thinking local and global corporate partners are a key part of the University's research success.

The University's Priority Research Centres focus resources into our research strengths across a range of areas, including energy.

FOCUSING ON CLEAN AND RENEWABLE ENERGY

The Priority Research Centre for Energy (PRCfE) focuses on one of the most challenging contemporary issues: the management of Greenhouse Gas Emissions (GHG). Through its research themes, the PRCfE members are undertaking cutting edge research and development across a range of fields including clean coal, renewable energy and other GHG abatement technologies.

The PRCfE director is Professor Bogdan Dlugogorski FTSE, a world leader in energy and environmental research.

Clean Coal

Program Leader: Professor Terry Wall AM FTSE

Oxyfuel

Chemical looping

CO_2 capture

Fundamentals of turbulent combustion

Renewable Energy

Program Leader: Professor Behdad Moghtaderi

Biomass (gasification, charcoal, co-firing, toxic products)

Wind

Geothermal

Transportation Fuels and Energy Conversion

Program Leader: Professor Eric Kennedy

Ammonia and methanol

Hydrogen

Electrical energy (batteries, generation and transmission)

Energy and the Environment

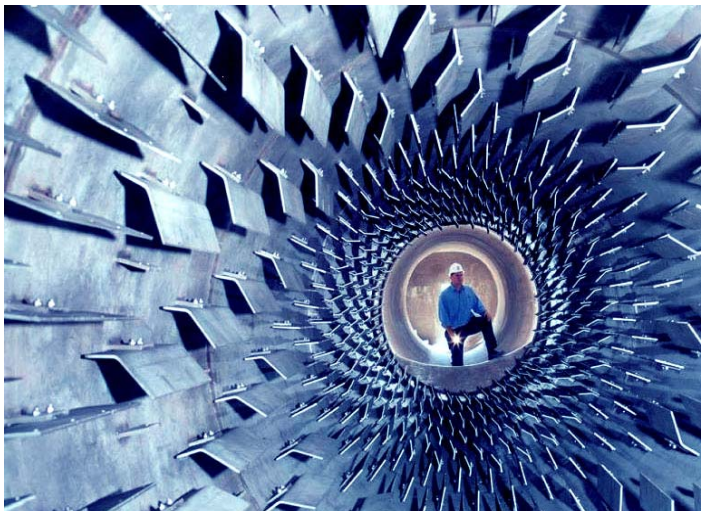
Program Leader: Associate Professor John Lucas

Environmental technologies (soil treatment, desalination, synthetic greenhouse gases, pollution abatement)

Energy efficiency (energy efficient buildings and retrofitting, urban regeneration and renewal, transformation of inefficient structures into green building, flow control strategies)

Knowledge systems, resilience, life cycle analysis, well-to-wheel.

Knowledge supply chain system development for energy: knowledge acquisition, representation , storage and usage.



REAL WORLD APPLICATION

The PRCfE harnesses and focusing the extensive expertise in energy across the University. Researchers work alongside process developers and commercialisation specialists offering the unique ability to take a concept from its theoretical beginnings through to commercialisation.

The PRCfE focus on delivering results is making a mark in key energy areas such as energy efficient housing, energy recovery from co-utilsation of biomass and coal, energy recovery from refuse-derived fuels, geothermal energy and energy efficient desalination plants, energy storage and many others areas.

The University of Newcastle's PRCfE is unique in its breadth of expertise and comprehensive service it offers from concept through to commercialisation. An approach that is unmatched anywhere in Australia.

A SNAPSHOT OF PROJECTS

CS Energy Callide Oxy-Fuel Demonstration Funded by Low Emissions Technology Development Fund

Chemical Looping with the Newcastle Port Corporation

Geothermal Power Generation

Conversion of Synthetic GHG to Useful Chemical with Department of the Environment and Water Resources

STATE OF THE ART FACILITIES

Chemometrics Research Laboratory

Clean Coal Research Laboratory

Computational Surface Physics and Nanoscience Laboratory

Energy Efficient Housing Facility

Energy Storage Research Laboratory

Knowledge Based and Intelligent Systems

Laser Diagnostic Laboratory for Heat and Fluid Flow Analysis

Micro-Energy Systems Laboratory

Process Safety and Thermal Analysis Facility

Renewable Energy Systems Laboratory

Scale-up and Pilot Plant Facility

Space Laboratory for Architectural Research and Design

Surface and Porosity Characterisation Facility

Turbulence Research Laboratory

Wind Turbine Facility

OUR PARTNERS

3M

Anglo Coal

BHP Billiton

Centre for Coal in Sustainable Development

CS Energy

CSIRO

Delta Electricity

Department of the Environment and Water Resources

Granite Power

HIsmelt

Hunter Water Corporation

Newcastle Port Corporation

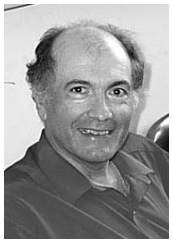
Think Brick Australia

Tomago Aluminum

Wormald

Xstrata

FELLOWS OF ACADEMIES



Professor Robert Antonia FAA

Robert Antonia trained in Mechanical Engineering at the University of Sydney, and was awarded his PhD in 1970 (Sam Luxton was his supervisor). Following a post-doctoral year at Imperial College on a CSIRO fellowship, he joined the University of Sydney as a lecturer in Mechanical Engineering in 1972. He was appointed to the Chair of Mechanical Engineering at the University of Newcastle in January 1976. He held an ARC Professorial Fellowship over the period 2001-2005. In 2004, he was awarded a Citation Laureate for Engineering by the Publisher Thomson ISI and was elected to the Australian Academy of Science. Throughout the seventies he collaborated with RANL and CSIRO on various aspects of atmospheric surface layer turbulence, both over ocean waves and vegetated surfaces. Since 1981 he has worked closely with researchers at the IMST (now IRPHE) in Marseille, attempting to establish a rigorous framework for comparing heat and momentum transports. More recently with La Sapienza in Rome, he has applied a combination of numerical and experimental techniques to several problems, in particular the turbulent flows over rough surfaces. He has more than 400 journal papers, including 68 in the Journal of Fluid Mechanics, 84 in Physics of Fluids and 64 in Experiments in Fluids.

Professor Bogdan Dlugogorski FTSE

Professor Dlugogorski is distinguished for his contributions to the field of industrial safety and environment protection, especially through innovative development of safe industrial processes. He has introduced new means to improve the performance of fire-fighting foams, thereby facilitating the development of new generation fluorine-free foams. He has made outstanding and sustained contributions to improving safety in the process industry, by modifying the existing technologies and developing safer industrial processes. Professor Dlugogorski founded and leads a large research group, with a strong focus on process safety, and engaged in collaborative research and technology transfer. His achievements are recognised both within Australia and internationally, by a series of awards and prestigious invitations.

Professor Adrian Page FTSE HonFIEAust

Emeritus Professor Page has an outstanding record in research, engineering education and senior levels of university governance. His research activities are in structural engineering and building science and he is the recipient of a number of national and international awards for his work particularly in the field of structural masonry. He has long standing industry links and was recently awarded the Brick Industry Medal for his services to the brick industry. He is the founder and leader of the Masonry Research Group whose contributions have been widely recognised internationally. Of particular note are the recent major projects involving the design of masonry housing for optimum energy performance

Professor Terry Wall AM FTSE

Professor Wall has shown outstanding leadership and personal research in the science and technology of coal combustion benefiting Australian and international coal industries. He has shown leadership in the establishment and management of an internationally recognised University centre for teaching and research on the sustainable use of coal for power generation and continued support for coal exports, and has been recognised by the broad community by appointment as a Member of the Order of Australia (AM). Professor Wall has been awarded the ESSO Award for excellence in Chemical Engineering, the Bryers Award of the Engineering Foundation, the John Chipman Award of the Iron and Steel Society (US) and the Pitt Award for Innovation in Coal Conversion of the University of Pittsburgh. He is a member of the editorial board of the international journals - Combustion Science and Technology as well as Fuel and the IFRF Online Combustion Journal.

Contact Us

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