MORE ABOUT: ASTRONOMY & PHYSICS

Entry Requirements

Local Students

Standard admission requirements to the University as well as the prerequisite TEE subjects Applicable Maths and Physics. Students wishing to enrol in double degree programs with engineering require Applicable Maths plus at least two of Physics, Calculus, Chemistry. Selection is based on Tertiary Entrance Rank (TER).

More Information

www.scieng.curtin.edu.au

International Students

Standard university entry requirements, as well as high school completion of Advanced or Higher Mathematics and Physics. Students wishing to enrol in double degree programs with engineering may also require physics or chemistry.

More Information

www.international.curtin.edu.au

International Students

International students studying in Australia on a student visa can only study full-time and there are also specific entry requirements that must be met.
Please refer to www.international.curtin.edu.au or phone +61 8 9266 7331 for further information, as some information contained in this booklet may not be applicable to international students. Australian citizens and permanent residents, and international students studying outside Australia, may have the choice of full-time, part-time and external study. Information about TISC only applies to Australian residents.

Reasons to Study Physics or Astronomy

1. The Physics community. Curtin Physics is a small, “fast-paced” Department, which performs above the national average in teaching quality performance indicators. We know our students personally and take great pride in our graduates and their achievements.
2. First class facilities. The Physics Department at Curtin is home to facilities including Thermal Ionization Mass Spectrometers (TIMS), Sensitive High Resolution Ion Microprobe Mass Spectrometers (SHRIMP), and the most advanced “ultraclean” sample preparation laboratory in the world.
3. Work with local and international collaborators. Curtin Astronomy has established excellent links with both the local and international astronomy community. In their final year projects, Curtin Astronomy students have the opportunity to work on projects associated with professional scientists and astronomers. Some projects may involve travel to remote locations and working with high tech equipment.
4. Course flexibility. All degree programs are founded on substantial fundamental physics, computing and mathematics. Graduates are not restricted to working in physics related careers but can work in many other areas of Science and Technology.

Further Study Options

For graduates of bachelor programs the following options for further study related to Physics are available:

- Postgraduate Diploma in Physics
- Master of Science (Physics) by Coursework
- Masters and PhD programs by Research.

For more, contact:

Science and Engineering
Curtin University of Technology
GPO Box U1987
Perth Western Australia 6845

Tel: +61 8 9266 4816
E: careers@vesta.curtin.edu.au
W : scieng.curtin.edu.au

International enquiries
Tel: +61 8 9266 7331
Fax: +61 8 9266 2605
E: careers@vesta.curtin.edu.au
W: international.curtin.edu.au

STAFF PROFILE

PROFESSOR IGOR BRAY
Theoretical Physics

Professor Bray is both an excellent science communicator and a big-picture thinker. This combination of skills has made him a great advocate and prominent speaker for science and science policy at local, national and international levels. His clear way of expressing his views, even about very specialised and complex topics, has enabled him to engage the broader community – including young students – in important discussions about the role of science and science education in Australia’s future.

He works in the theoretical physics area known as atomic collision theory. Atomic collisions go on all around us – and even inside us – all the time: chemical reactions are examples of atomic collisions and all electro-magnetic radiation (such as visible light, X-rays, microwaves) is either due to, or influenced by, such collisions.

Professor Bray’s major research achievement in this field was the development of the Convergent Close-Coupling (CCC) theory. The CCC theory was developed during the early 1990s in response to unresolved problems between existing theory and experiment for the most fundamental collision systems involving electrons, photons, atomic hydrogen and helium. Not only did the CCC theory resolve these problems, but it did so in a unifying single approach. The accuracy of Professor Bray’s unifying theory was so great that on several occasions it showed errors in existing experiments. Professor Bray’s achievements formed the basis of a story on the ABC’s science program, *Quantum*, in 1999.

Curtinnovation

Curtin aspires to be a leading edge university of technology.
To fulfil this vision, we strive to be innovative and forward-looking in everything we do. It’s in our approach to teaching and learning. It’s in our research. It’s in our staff. It’s in our students. It’s in our graduates. It’s in the way we think and act. It’s what we call Curtinnovation.

Bachelor of Science in:
Astronomy, Physics, Physics and Mathematical Sciences, Physics and Scientific Computing

Double Degrees
Physics and Education (BSc/BEd)
Physics and Electrical and Computer Engineering (BSc/BEng)

ASTRONOMY & PHYSICS AT CURTIN

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Curtin
University of Technology

ABOUT:
ASTRONOMY & PHYSICS

Physics is often described as the great science. Students who choose this discipline generally do so because they are fascinated by fundamental questions about the physical structure and functions of the Universe, what it consists of and how it works. Physics attempts to answer questions about things such as the intricate structure of radiation matter, atoms and sub-atomic particles and how they interact with each other. It also seeks to explain relationships between the smallest and largest structures, forces, and energies in the Universe.

Much of the physical universe can be explained through six major areas of Physics. These are, in chronological order of their development, Mechanics, Thermodynamics, Electromagnetism, Relativity, Quantum Mechanics and Nuclear Physics.

Mechanics is an area of physics that explains the concepts of forces, energy and motion which are surprisingly often counter-intuitive. Many of the fundamental concepts in what we now call Newtonian mechanics were developed by Galileo and Newton in the 16th-17th Centuries. For more than 200 years no experiment carried out to test Newton's laws of motion could fault them and these laws significantly contributed to the progress of the industrial revolution over this time.

Thermodynamics is the theory that explains heat, temperature and the behaviour of large arrays of particles. It is the basis of many areas in science and technology, including motor vehicles; fundamental chemistry and chemical engineering; heat exchange by living cells; meteorology and the study of the behaviour of atmospheric pollutants; ocean circulation patterns such as the "El Niño" effect, and many others.

Electromagnetism is the theory of electricity, magnetism and electro-magnetic radiation. It is the basis of our understanding of visible light, radio and microwaves, and infrared, ultraviolet, X-rays and gamma radiation. The applications include video games, electric motors, telephones, magnetically levitated super trains, electronic music, computers, the internet and much more.

Quantum Mechanics is the theory of the mechanical behaviour of the sub-microscopic world and provides the foundation for today's electronics industry. It highlights the remarkable changes this has brought such as laser and nanotechnology and a multitude of other developments.

Relativity Everybody knows that Newton proposed the Law of Gravity. He could not, however, provide an explanation for gravity. It was not until Einstein's theory of general Relativity in 1915 that an acceptable explanation was developed. The other famous outcome of relativity is the famous equation, $E=mc^2$ and its impact in nuclear energy.

Nuclear Physics At around the same time as Quantum Mechanics was being developed, scientists, such as Marie Curie, Ernest Rutherford, Enrico Fermi and Robert Oppenheimer advanced our understanding of the atomic nucleus. Now known as Nuclear Physics, this has had a major impact on society in the fields of electronics, nuclear energy and medicine.

CAREERS:
ASTRONOMY & PHYSICS

Careers in Astronomy and Physics

Physics is a pathway to many careers, some of which are not always obvious. While the title of "Physicist" may not be common, there are careers resulting from the study of physics that may be more familiar. Some of the common careers for graduates of Physics are listed below. For careers in particular areas students specialise in a program of study by choosing relevant option and elective subjects from the large number available.

Astronomy

Work in Astronomy is generally associated with research. Some Astronomers analyse large amounts of data taken from satellites and observatories. Astronomers in Western Australia may be employed at the Learmouth Observatory, while others may be employed as part of teams operating large space or ground-based telescopes at locations such as the Gemini telescopes at Cerro Pachon in Chile or the Keck telescopes of Mauna Kea in Hawaii. For more information on Astronomy work in Australia see page 6 on the Square Kilometre Array.

Some Astronomers work as theoreticians examining the laws that govern the structure and evolution of astronomical objects. Astronomers may also be employed in Planetariums and science centres working to educate the public about the wonders and mysteries of the skies above. Many Astronomy graduates work in other areas of science, computing and even business. An ability to tackle some of the most complex questions in nature also enables Astronomy graduates to work in diverse fields such as financial institutions, data analysis centres and in IT.

Environmental Physics

Physics is becoming an increasingly important tool in understanding the way societies affect their environment. Environmental challenges to physics include the interaction of sunlight with airborne particles and molecules; energy conservation in developed economies; disposal and storage or radioactive waste; and the development of energy saving and so-called green materials such as polymers.

Marine Science and Technology

Marine science and technology is related to Oceanography but usually involves additional aspects of physics, engineering and technology relevant to the maritime environment. Maritime scientists often work in collaboration with Oceanographers, biologists and engineers. Their activities may include collecting oceanographic or other data to improve the design and performance of ocean going vessels, increase the stability of oil rigs in storms, aid in underwater construction and engineering and in maritime archaeology.

Materials Technology

Western Australia is one of the world's richest natural resource areas with massive exports in iron ore, petroleum, titanium, alumina and nickel. To ensure we are left with more than just 'holes in the ground', Australian materials scientists are busy researching ways to add value to our mineral exports. The key to adding value to mineral exports is to turn them into materials which are substantially more valuable than their raw components. This process begins with understanding the physical and chemical make up and behaviour of new materials using physical methods of analysis such as X-ray analysis, electron microscopy and neutron scattering.

Medical Physics

Medical Physicists work in many areas of health and medicine including biomechanics, radiation monitoring, radiography and in scientific analysis of medical data. Their responsibilities range from setting up and maintaining computerised data collection and analysis systems, computer manipulation of medical images, and radiation monitoring during the diagnosis and treatment of diseases. Most of this work cannot be performed by medical or health professionals because they do not have the necessary skills. This work must be performed by people with specialised scientific training and with computational and programming skills. The ability to work as member of a team is an important attribute of Medical Physicists who almost always work in collaboration with other health professionals.

Oceanography

Australia is responsible for an area of ocean much larger than our country. The activities of oceanographers include measuring and analysing the properties of the ocean (temperatures, currents, waves, salinity, water depths, pollution, icebergs, biological activity etc). Oceanographers use submersible vessels, ships, aircraft or satellites as platforms for their instruments. Their measurements are important to the study of the greenhouse effect, ocean pollution, marine based resources, underwater archaeology and large scale biological studies.

Theoretical and Computational Physics

Theoretical Physicists model the physical world and make predictions about future outcomes based on the laws of physics. They make extensive use of mathematics and supercomputers to establish models and perform complex calculations. Collaboration with experimental Physicists is used to validate the models against benchmark laboratory-obtained data. Due to their strong computational skills, graduates in this area can find employment in industry and many government agencies.

Radiation Physics

Radiation Physicists work in many areas, including environmental radiation monitoring, disposal of radioactive materials, health and medical physics, and radiography. Their responsibilities range from setting up and maintaining radiation monitoring and analysis systems, monitoring radiation during the diagnosis and treatment of diseases and supervising people working with lasers. Most of this work cannot be performed by other scientists such as medical or health professionals because they do not have the necessary scientific training. The potential risks of radiation often requires that, by law, this work be performed by people with specialised scientific training.

Remote Sensing

Remote sensing is a new and expanding area of science which involves collecting and studying scientific data without actually being on location. The activities of a Remote Sensing Scientist range from setting up and maintaining a remote sensing (almost certainly computerised) data collection system and obtaining meaningful results by the extensive manipulation and analysis of the data. Most Remote Sensing Scientists work from satellite data on problems ranging from the green house effect, ocean and atmospheric pollutants, locating resources and archaeological sites, huge scale biological studies and computerised mapping. Remote sensing requires people with a strong scientific training in physical sciences, mathematics and computer programming.

Industries Where Physics Graduates Work

- Astronomy & Astrophysics
- Theoretical and Computational Physics
- Materials Science
- Medical Physics
- Meteorology
- Nanotechnology
- Nuclear Physics
- Oceanography
- Optics
- Remote Sensing

COURSES: PHYSICS

Course Structure - Physics*

YEAR 1

Semester 1

- Physics 101
- Scientific Computing 101
- Mathematics 101
- Elective Subject(s)

Semester 2

- Physics 102
- Science Communications 101
- Statistical Data Analysis 101
- Mathematics 102
- Elective Subject(s)

YEAR 2

Semester 1

- Physical Measurements 201
- Physics 201
- Advanced Calculus 201
- Elective Subject(s)

Semester 2

- Particles and Waves 201
- Physical Measurements 203
- Mathematical Methods 204
- Elective Subject(s)

YEAR 3

Semester 1

- Quantum and Statistical Physics 301
- Option Subject(s)
- Elective Subject(s)

Semester 2

- Physics Project 301
- Solid State Physics 302
- Elective Subject(s)

Course CRICOS Code 061600D

* Course structures of other Physics specialisations are available from www.handbook.curtin.edu.au

Related Areas of Study

Other courses offered at Curtin that include physics:

- Nanotechnology
- Engineering
- Geophysics
- Medical Imaging Science

Studying Physics at Curtin

A number of Physics programs are offered at Curtin either in a single or double major format. Regardless of which Physics combination is followed, a central focus of study is common to most areas making it possible for students to refine their studies towards their particular interest area or career aspirations beyond the initially chosen program.

Core Units

In first year, core units cover an introduction to a range of topics including: systems of particles, vibrations, gravitation, waves, special relativity, data analysis and laboratory report writing, electricity, electrical instruments and their applications, circuits, solid state physics (semi-conductors), thermodynamics, quantum physics, nuclear physics and computational physics.

Second year core units examine in greater detail some of the first-year topics and introduce new material, including: waves and vibrations, classical mechanics and electromagnetism and radiation. Greater emphasis is given to physical measurement, with students gaining experience in the use of instruments such as multi-channel analysers, radiation detectors, interferometers and spectrophotometers.

Only four core units are taken in third year. In Quantum and Statistical Physics students apply quantum mechanics to a study of atomic and molecular spectra, and learn the connection between microscopic (quantum) and macroscopic (thermodynamic) descriptions of physical systems. In Solid State Physics students learn some of the structural and behavioural aspects of solids, particularly crystals, followed by the study of semi-conductors.

OPTIONS AVAILABLE

- Electromagnetism 302
- Physics Project 302
- Applied Optics 302
- Physics of Fluids 301
- Astrophysics 302
- Scientific Data Analysis 301

ELECTIVES AVAILABLE

- Advanced Ceramics
- Anatomy
- Astronomy
- Computational Physics
- Computer Programming
- Design for Small Craft
- Electron Microscopy
- Environmental Physics
- Marine Science
- Marine Structures and Materials
- Mechanical Properties of Solids
- Medical Imaging
- Oceanography
- Physical Oceanography
- Physics of Fluids
- Planet Earth
- Planetary Science
- Properties of Solids
- Radiation Physics
- Scientific Data Acquisition
- Scientific Data Analysis
- Ship Science
- Solid State Physics
- Weather Forecasting
- X-ray Analysis

Physics

BSc (Physics)

This course provides the greatest flexibility of the physics type programs available at Curtin. Students can structure a significant part of their course to suit their needs, either for general or career-related interest, while learning the essential concepts and skills in physics through core units. A major research project is taken by all students in the senior years of their degree program and is often directly related to the career path that they hope to follow.

Physics & Mathematical Sciences

BSc (Physics & Mathematical Sciences)

The physics core component of this course is identical to the Physics major option. The remainder of this course is a structured program in mathematics with an emphasis on applied mathematics. This course would suit students interested in working in industries, such as mining, or for government agencies, such as the Bureau of Meteorology, where knowledge of both physical and mathematical principles are required.

Physics & Scientific Computing

BSc (Physics & Scientific Computing)

This course recognises the increasingly significant role of high performance computational (HPC) techniques in solving complex problems in physics and in many industrial contexts. The intention is to meet the needs of the most capable students who wish to pursue careers at the highest levels in industry or government organisations or who intend to undertake higher degrees by research. The course has a number of optional pathways including computational methods and techniques, physical sensor hardware and scientific data collection and processing, and scientific visualisation. There is a strong emphasis on applied techniques in the areas of Atomic and Molecular Physics, Radio Astronomy, Solid State Physics, Satellite and Remote Sensing and Security System technologies.

In second year students extend their knowledge of scientific computing and physics as well as undertaking an advanced calculus unit and a physical measurements unit. There are a variety of optional units to choose from such as software technology, scientific data acquisition and introduction to operating systems that will provide students with a wide knowledge in computing.

Third year students are introduced to quantum and statistical physics, particles and waves, and solid state physics. They also extend their knowledge of physical measurements. Mathematical methods are also introduced. Once again students can choose from the optional units list to increase their computer knowledge. A research project needs to be completed.

GRADUATE PROFILE

DANIEL VEEN BSc(Physics)(Hons)
Current PhD Student, Centre for Marine Science and Technology, Curtin

When Daniel left high school he planned on becoming a pilot. However, an inspiring high school teacher encouraged him to pursue a physics degree instead and he enrolled at Curtin.

"The bachelor degree was better than I expected. I got involved in some really interesting projects related to marine science. For example, in one project I worked on modelling water flow around the fin system of an Autonomous Underwater Vehicle (AUV) using the supercomputer at the Australian Partnership for Advanced Computing Facility in Canberra. I also got involved in science education through the Siemens Science Experience and worked with organisations like SciTech on the Regional Awareness Festival where we took a science road show to secondary students in regional Western Australia."

The support and social environment at Curtin helped make the course enjoyable even during exam time.

"The physics department is small which meant that we had lots of interaction with our lecturers. This included playing on the soccer team with senior physics researchers!"

Daniel is currently undertaking a PhD in Physics at Curtin. His research involves modelling the way large marine vessels such as high speed catamarans hit waves.

"I am using a new computational method to model different hull shapes that will minimise the 'slamming' effect of waves against high speed craft such as catamarans. The research will help to influence hull designs so that ocean travel is smoother and structural fatigue is reduced. This means safer and more comfortable travel for passengers."

The research has application in other areas too and in the long term Daniel hopes to be able to use his research in hydrodynamics to work in F1 motor racing or the Aerospace industry.

Professional Recognition*

- The Australian Institute of Physics
- The Australian Mathematical Society*
- Engineers Australia*

*Graduates in appropriate double major or double degree program

COURSES: ASTRONOMY

Course Structure - Astronomy

YEAR 1

Semester 1

- Astronomy 101
- Physics 101
- Mathematics 101 or Mathematics 103
- Software Technology 151
- Science Communications 101

Semester 2

- Planetary Science 101
- Physics 102
- Mathematics 102 or Mathematics 104
- Software Technology 152
- Statistical Data Analysis 101

YEAR 2

Semester 1

- Observational Techniques in Astronomy 201
- Physics 201
- Physical Measurements 201
- Advanced Calculus 201

Semester 2

- The Physics of Stars and Galaxies 202
- Particles and Waves 201
- Physical Measurements 202
- Linear Algebra 202

YEAR 3

Semester 1

- Relativistic Astrophysics and Cosmology 301
- Quantum and Statistical Physics 301
- Select Option Units

Semester 2

- Exploring the Radio Universe 302
- Electromagnetism 302
- Select Option Units

YEAR 4

Semester 1

- Radiation Processes in Astrophysics 401
- Astronomy Honours Dissertation 401 or Astronomy Project 401
- Select Option Units

Semester 2

- Radiation Processes in Astrophysics 402
- Astronomy Honours Dissertation 402 or Astronomy Project 402
- Select Option Units

Course CRICOS Code 057748G

Astronomy

BSc (Astronomy)

Astronomers study the universe and the objects inhabiting it; from tiny intergalactic particles to the largest structures such as clusters of galaxies and the fabric of space. Astronomy is the observation and identification of astronomical bodies such as those in the Solar System and the Milkyway, as well as Astrophysics, a specialised area dealing with the physical laws that govern the universe.

Astronomy is a growing field in Western Australia, with the development of the Murchison Widefield Array (MWA) and the Australian Square Kilometre Array Pathfinder (ASKAP) in preliminary stages. Both will form the next generation of Radioastronomy in Australia, and may pave the way for the eventual construction of the Square Kilometre Array (SKA) here in Western Australia (see feature for more details). These activities are attracting an increasing number of visiting researchers who provide valuable research seminars for the WA Astronomical community.

Curtin is a core contributor to the MWA's design and implementation, with technology development a core focus of the Curtin Institute of Radio Astronomy (CIRA).

Curtin has excellent links with the Perth Observatory allowing Curtin physics students to undertake projects at the centre. Astronomy students also have the opportunity to become intimately involved with ground-breaking research related to the Square Kilometre Array (SKA) project.

There are many fields of research and development in astronomy, such the structure of the universe, galactic dynamics, pulsars, gravitational lensing and gamma ray bursts. Students entering this degree will become skilled in a range of disciplines, specialising in astronomy, whilst also gaining skills in mathematics, programming and data acquisition and analysis.

OPTION UNITS

- Mathematical Methods 301
- Scientific Data Analysis 301
- Computational Mathematics 301
- Physics of Fluids 301
- Applied Mathematical Modelling 302
- Scientific Data Analysis 302
- Isotope Science 302
- Solid State Physics 302
- Applied Optics 302
- Astronomical Data Analysis
- Physics 402
- Quantum Mechanics 401
- Instrumental Physics 404
- Instrumental Physics 403
- Advanced Optimisation Techniques 401
- Science Research Methodologies 451
- Computer Science 452
- Sold State Physics 401
- Combinatorial Optimisation 402
- Numerical Analysis 402
- Time Series Modelling 404

RESEARCH: PHYSICS

Physics Research at Curtin

Astronomy and Remote Sensing

Research in this area is by optical astronomy through the Perth Observatory and Radio Astronomy on Boolardy station, Western Australia.

Research currently conducted by the Remote Sensing and Satellite Research Group (RSSRG) concentrates on sensor modelling studies, instrument calibration, radiometric correction, atmospheric and oceanic transmittance studies, algorithm development, hyperspectral sensing and geophysical product validation. The RSSRG represents Curtin's interests within the Western Australian Satellite Technology Consortium and the Leeuwin Centre for Earth Sensing Technologies.

Isotope Science

Research in isotope science is conducted through the John de Laeter Centre for Mass Spectrometry at Curtin University. The Centre's state-of-the-art equipment includes two Thermal Ionization Mass Spectrometers (TIMS), two Sensitive High Resolution Ion Microprobe Mass Spectrometers (SHRIMP), and the most advanced "ultraclean" sample preparation laboratory in the world.

Current research projects include characterisation of lead isotopic signatures in air on a global scale, identification of pollutants from Greenland and Antarctic ice and lake sediments using isotopic tracers, astrophysical models of element formation via meteorite studies and neutron capture in lunar soil samples.

Materials Science and Technology

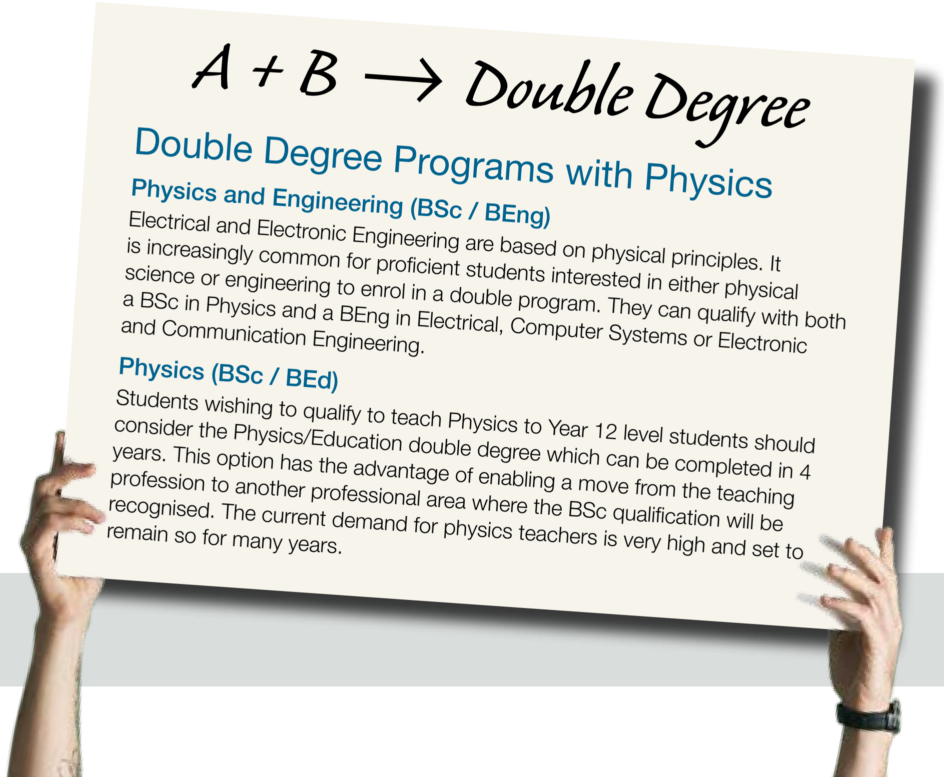
The general theme of the research conducted in this area is the development of new materials and associated characterisation science relevant to making these materials commercial especially in Western Australia. Examples include the design of advanced alumina-based ceramic materials, advanced magnetic materials, hydrogen based storage systems, and geopolymers.

Marine Science

Research is conducted in three general areas – marine acoustics, underwater technology and ship science. Marine acoustics research is focussed on acoustic propagation and sound scattering processes in the ocean. Projects in recent years have included the development and use of Upward Looking Sonar equipment for measuring the thickness of Antarctic sea ice, and studies of the effects on marine life of sound produced by marine seismic exploration. Underwater technology research is mainly associated with the design and deployment of remotely operated underwater vehicles (ROVs). Projects in ship science include the modelling and measurement of vessel motions and specialised yacht design.

Institute of Theoretical Physics

Currently, the primary focus of the Institute of Theoretical Physics (ITP) is the broad field of atomic collision theory. This covers interactions between particles on the atomic scale, and includes collisions involving electrons, photons, positrons, (anti)protons, atoms and molecules. The interactions are governed by the laws of Quantum Mechanics that are solved using some of the most powerful supercomputers available. Applications include lasers, astrophysics, fusion, lighting, material and medical sciences. The ITP is a world leader in this field with many ongoing international collaborations.



The Square Kilometre Array (SKA) Project

The ever-increasing power of computers and high speed data processing networks has opened up the possibility of many new generation Radio Telescopes. The most exciting of these is being developed by an international consortium represented by 18 countries. They are developing a radio telescope that will be 100 times as sensitive as the best instruments available today. Termed the Square Kilometre Array (SKA), the project will be composed of a network of receiving stations totaling a collection area of one million square metres. The entire network will be spread over several thousand kilometres and the development of it will require the technical expertise of a number of companies throughout the world.

The SKA project has a projected minimum 50 year lifetime and has been described as being able to answer eight of the current top 10 questions in Astronomy and having potential for Nobel Prize winning research. Using the SKA, astronomers will be able to see the formation of the early Universe, including the emergence of the first stars, galaxies and other structures. This will also help researchers to finally understand the birth, and eventual death, of the cosmos.

The SKA will also revolutionise other areas of astronomy and make unique contributions to basic physics, including the observation of extreme relativistic effects. One of the sites proposed for the SKA is Boolardy station in Western Australia, which has been designated by the Western Australian Government as a Radio-Quiet Park. As a result, Western Australia is expected to become home to millions of dollars of astronomy-related infrastructure and will be one of the leading research facilities in the world.

The SKA project will involve thousands of scientists and technicians worldwide. A major data processing centre will be established with super-high bandwidth data transfer directed to Perth and from there, around the globe. The amount of high technology development required is enormous, and creates an increased demand for professional staff and graduates in the area of Astronomy and related disciplines such as Physics, Mathematics, Computing and Engineering. Curtin Astronomy is already involved in a number of local and international collaborative projects associated with the Boolardy Radio-Quiet Park. Currently Curtin, CSIRO and a number of Australian and overseas universities are setting up a wide range of demonstrator type instruments within the park.