School of Physics Strategic Plan
2013-2015
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SCHOOL STATEMENT

The School of Physics at the University of Sydney is the oldest and one of the most successful physics departments in Australia. The school is currently made up of around 25 staff involved in teaching and research, 105 research-intensive staff, 140 postgraduate research students, 25 postgraduate coursework students and 35 Honours students. All of these are supported by some 40 administrative and technical staff.

Our staff and postgraduate students conduct research across a broad range of fields from nanoparticles to clusters of galaxies and from theoretical modeling to laboratory experiments. With access to supercomputers, modern laboratory facilities and observatories, locally, nationally and internationally, the School of Physics is the premier environment for physics education and research. Many of these initiatives have been driven by high-profile appointments, including the award of two Laureate Fellowships and seven Federation Fellowships - the largest number for any department in any research discipline in the country. The School of Physics has continued its success in attracting ARC research fellows and as of 2013, also hosts 6 Fellows with 8 Future Fellowships and 6 DECRA recipients. This is further enhanced with more than 70 Postdoctoral researchers supported on grants and other external funds.

The School is currently the headquarters of two ARC Centres of Excellence: the Centre for Ultrahigh Bandwidth Devices for Optical Systems (CUDOS); and the Centre for All-Sky Astrophysics (CAASTRO). In addition, the School hosts nodes of four other Centres of Excellence: the Centre for Engineered Quantum Systems (EQuS), the Centre for Particle Physics at the Tera-Scale (CoEPP), the Centre for Quantum Computation and Communication Technology (CQC2T) and the Centre for Integrated Research and Understanding of Sleep (CIRUS).

Our strong research performance, high number of Federation, Laureate and other ARC Fellows and the presence of Centre’s of Excellence and Cooperative Research Centre’s, coupled with the ability to win research funding from external sources, are essential elements in positioning the School of Physics as the leading force in Australian Physics education and research.

Students in the School of Physics are provided with a rounded educational experience that comprises an engaging and evolving curriculum at undergraduate and postgraduate levels, which is informed by research and delivered in innovative learning environments. Having highly qualified and research-active staff facilitates teaching and learning by exposing students to the latest developments in research. All of this enriches the learning experience and gives real meaning to their studies.

In early 2010 the University was awarded funding from both the federal and state governments to build a state-of-the-art nanoscience research and teaching facility – the Australian Institute for Nanoscience (AIN). Research in this $110M purpose-designed
Building will focus on discovering and harnessing physics at the nanoscale, in areas such as communications, photonics, quantum science, astrophysics and medical diagnostics. Building on its reputation as a recognised leader in the physical sciences, the School will establish the first endowed Chair of Nanoscience. This position will support existing expertise within the School and will build upon our strengths.

The building’s advanced research capability will be housed alongside comprehensive facilities for student-focused undergraduate and graduate teaching and integrated with the existing heritage-listed building for the School of Physics. Work commenced at the end of November 2012 and the new AIN facility will be ready for students commencing in Semester 2 of the 2015 academic year. In summary, the AIN and research in nanoscience will further position the School as a leader of Physics research and educational excellence.

VISION

To be Australia’s top School of Physics, internationally recognised for excellence in research and teaching.

MISSION

To contribute to knowledge and long-term global well-being through performing world-leading, high-impact, societally important research across a range of fields in Physics, from the quantum scale to the astronomical.

We will deliver this by recruiting and retaining the best researchers, training the next generation of world-leading researchers, and providing state-of-the-art facilities both directly and through strategic collaborations.

To improve the understanding of Physics across society by providing first-class teaching to a broad range of students, including those who will go on to shape the future of Physics, but also tomorrow’s leaders, whose decisions must be based on sound science, and the general population, whose engagement with science is crucial for our society. We will deliver these outcomes by providing engaged modern teaching, informed by the latest research, tailored to maximise the learning and development of the students choosing to study Physics.

PURPOSE

The purpose of the School of Physics is to:

- Conduct and publish high-impact research that makes a significant contribution to human understanding and, where applicable, commercialisation opportunities;
- Provide dynamic and innovative educational opportunities to leading
undergraduate and post graduate students from Australia and overseas;

• Promote to governments, the community, media, business, school students and educators of the importance of physics and the positive impact that the discipline makes to society.

WHAT COMPETITIVE STRENGTHS WILL CARRY THE SCHOOL TO 2015 AND BEYOND?

**Human resources:** The School’s most important resource is its staff. The current staffing structure is made up of around 25 staff involved in teaching and research and 105 research-intensive staff. All of these are supported by some 40 administrative and technical staff. The team brings together sound industry practice and appropriate skill sets required to deliver quality programs and research.

Developing and sustaining high quality research and teaching is about people. The best academic staff operate in a global marketplace and can work anywhere in the world. It is a major challenge for a School such as ours to put together research support packages that are competitive particularly in areas such as experimental physics where the capital and operating costs of major research equipment are high. The culture of the School is also important in ensuring that academic and professional staff perceive the University of Sydney as a ‘great place to work’ and that colleagues are not only of the highest quality but collaborative in their outlook.

The School actively supports this valuable resource through various professional development activities related to teaching and learning initiatives including staff mobility projects such as sabbaticals and further study. Staff achievements are highly regarded and recognised through various mediums including the University and School web sites, school newsletter and presentations to the school.

**Research:** Over the past ten years research in physical sciences at the School of Physics has been spectacularly successful, with competitive income increasing by over 100%, annual publications recorded in IRMA reaching over 700 in 2012 and the number of research-intensive staff increasing to over 100. Over the same period the numbers of students, particularly at the postgraduate levels, have grown dramatically.

The goal is to see the School continue to grow but not at the expense of research quality and impact. Also, there is a need to encourage more academic staff to increase their productivity including broadening the number of staff engaged in research supervision and acting as Associate Supervisors, particularly on cross-disciplinary projects with other schools and departments. The School has had a limited focus on international competitive funding and this is an area of potential growth over the term of this Plan. It is also important to remove actual and perceived barriers to cross-disciplinary research.

**Teaching and Learning / Course structures:** As with academic staff, students are increasingly geographically mobile. The School attracts a very high percentage of high
ATAR New South Wales-based undergraduate students but cannot take its position for granted. The School must also be prepared to attract quality undergraduate students from inter-state. The opportunity exists to re-think the manner in which Honours and PhD/MSc programs are delivered and organised to differentiate the Sydney Physics PhD experience through the formation of a Graduate School. In terms of research training, the School’s objective is to double the number of PhD students over the coming five years which will necessitate attracting high-calibre individuals from overseas.

**National and international research collaboration:** The school has the highest percentage of external collaborations in the Science Faculty (with ~ 44% of publications having external collaborations). There are almost twice as many collaborations with international institutions as with other Australian institutions, and the number of all external collaborations is rising. About 42% of all international collaborations are with the USA, followed by the UK (27%).

**Student outcomes:** The School focuses on developing graduates that are work ready; life-long learners; global in outlook; culturally, environmentally and socially aware; and innovative. This is achieved through various approaches to delivery to include elements of work-integrated learning, Internationalization of the curriculum, student mobility, innovative approaches to e-learning, industry connectedness and Alumni.

**Quality facilities and equipment:** Obtaining adequate building facilities to meet growth needs has been a challenge for the School in recent years. To this end, in 2010 The University of Sydney successfully secured $40 million Federal Government funding contribution to build the new Australian Institute for Nanoscience (AIN). The research possibilities of the new building were further enhanced in 2011 by a $5M gift from John Hooke CBE, former Chairman and CEO of Amalgamated Wireless Australasia (AWA) to endow a new academic chair in Nanosciences.

**THE KEY CHALLENGES AND GOALS FOR THE SCHOOL FROM 2013 TO 2015 ARE TO:**

- Recruit the John Hooke Chair in Nanoscience;
- Secure funding for operational costs and major capital equipment required for the AIN in 2015;
- Appropriately manage the School’s discretionary budget, including the challenges arising from the number of academic staff coming off fellowships;
- Enable growth of International HDR candidates through dedicated philanthropic efforts and other opportunities;
- Determine the scope and viability of a Physics Graduate School;
- Conduct a review of the School IT function and structure and implement recommendations;
- Enhance the School web in relation to content and overall architecture (with the aim of attracting the best staff and students and enhancing communication about the School);
- Develop an enhanced strategy to build on our relationship with our alumni and develop collaborative networks for research and T&L;
- Draft and implement an Infrastructure and Accommodation Strategic Plan (including the role and influence of the AIN) to 2015.
- Draft and implement corresponding Operational Plans to 2015.

BACKGROUND TO THIS PLAN

A consultative approach was taken in drafting this strategic plan including dialog with the Head of School, the SMC (School Management Committee), School Strategic Planning Committee and the PAC (Professorial Advisory Committee). This Strategic Plan summarises the School’s key goals and initiatives for the coming years, and is intended to be an evolving document. The overarching School Strategic plan cannot operate in isolation and an Infrastructure and Accommodation and Outreach Strategic plan need to be drafted in alignment with the overall School strategic plan and vision. An accompanying annual Operational Plan will set out in more detail both (i) the specific actions which the School will take to implement the Strategic Plan and (ii) the metrics needed to judge whether these actions have been successful.

Our strategic plan aligns with the University of Sydney’s 2011-2015 Strategic Plan and the Faculty of Science Strategic Plan for 2011-2015.

STRATEGIC PLANNING – THE GUIDING PRINCIPLES

The Faculty of Science Guiding Principles:

1. Teaching & Learning
   High quality and efficient teaching of the most promising students.

2. Research
   The brightest researchers carrying out world-class research of high impact in top quality facilities.

3. Outreach
   Communicating the role of science in contributing to the solutions of the challenges facing the world.

4. Marketing & Fundraising
   Attracting the most promising students, whatever their background.

5. School Facilities and Accommodation
   Provide world-leading facilities designed to provide an inspiring learning, teaching and research environment to ensure optimized student satisfaction and research success.
6. Management and Governance
Creating a sustainable model for Faculty and University operations.

The School of Physics Guiding Principles:

- Excellence in all aspects of the School’s operations
- Investment in productive areas of research
- Commitment to high-quality teaching and learning
- Integration of research and education
- State-of-the-art facilities
- Mutual respect and collegiality
- Engagement with stakeholders, schools, business and the community

STRATEGIC DIRECTIONS

1. Teaching and Learning

Education is a major focus of the School’s activities and our aim is to attract the highest quality undergraduate and post graduate students from Australia and overseas and offer them a first rate educational student experience.

Undergraduate teaching is the economic ‘bread and butter’ of the School. It is essential that the School continues to provide an appropriate range of high-quality undergraduate courses in the basic physics disciplines taught by both senior and more junior academic staff. At the same time, the School must ensure that it builds depth and scale in its research efforts in order to remain nationally and internationally competitive. One particular challenge is to ensure that students have access to research-only and senior teaching-and-research staff but without over-burdening either group with teaching administration activities. A key objective for the strategic and decadal plans is to assist the School to productively manage the natural tension between staffing the School for undergraduate and post graduate teaching and research.

In the period 2013-15, we aim to:

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<tr>
<th>Teaching and Learning Strategies</th>
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<tr>
<td><strong>Undergraduate:</strong></td>
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<tr>
<td>• Initiate a School-wide policy for promoting and supporting pathways from Undergraduate to Postgraduate programs with a focus on International candidates and those from low SES backgrounds.</td>
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<tr>
<td>• Increase the number of high-quality Honours students from 35 to 40.</td>
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<tr>
<td>• Engage alumni and academics to give targeted talks to Undergraduates to advise</td>
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</table>
students on their career options and work life balance.

**Postgraduate:**
- Ensure PhD students have access to School-based casual work and teaching experience.
- Increase the number of appropriately qualified International PhD students through regular promotional activities and scholarships. Target numbers by 2020 are 300.
- Optimise the number of HDR students supervised per FTE member of academic staff to enable the growth of our HDR cohort. (In line with University Policy).
- Refresh our postgraduate programs to ensure professional relevance and delivery of core graduate attributes.
- Facilitate ‘Career Survival Skills’ training for postgraduate students.
- Improve approaches in more effectively and efficiently managing APR’s and supporting students and staff.
- Encourage all postgraduate students to have an international study / learning / research experience.
- Implement an improved procedure to better monitor and communicate HDR candidate’s progress towards completion.

**Student Experience:**
- Develop an enhanced strategy to better engage with our alumni and develop collaborative networks for research and T&L.
- Determine the scope and viability of a Physics Graduate School.
- Plan and implement improved approaches to the use of e-learning.
- Teaching methods, curriculum development, exchange programs and research projects to be benchmarked against and aligned to world’s best practice.
- Provide opportunities for students to meet and actively engage with visiting scholars.
- Encourage all research staff to be involved in some way with the School’s educational and teaching activities.
- Provide a vibrant student experience by exposing students to diverse aspects of Physics.
- Implement Teaching & Learning improvement projects and initiatives linked to in-house, CEQ and GDS surveys, and Staff-Student liaison meetings.
- Ensure T&L excellence is linked to metrics associated with student satisfaction and outcomes, i.e., perform above the Go8 average in national course and university surveys (Course Experience Questionnaire (CEQ)).
- Prepare for future TEQSA audits and identify areas requiring improvement.
- Adjust assessment procedures to comply with new University Assessment policy.

**Teaching Spaces:**
- Design and plan innovative teaching spaces in the AIN building.
• Increase the use of computer-based learning techniques (e.g. simulation) in units by exploiting the studio lab facilities available currently in Carslaw and coming in the AIN.
• Enhance the use of IT and investigate appropriateness of on-line materials, MOOCs and virtual lecture-demonstrations within our teaching practice.

Staff development strategies:
• All continuing staff appointed with a teaching role, who do not have prior teaching experience or qualifications, are required to complete the Graduate Certificate (Higher Education) by conclusion of their confirmation period. All staff with repeated lecturing role should be expected to do the ITL Principles and Practice Course.
• Mentor all new teaching staff.
• Recognise the contribution of teaching staff and seek to enhance their productivity through appropriate support.
• Aim to increase the number of national teaching awards won by staff.

Metrics:
- Student satisfaction (as reported through CEQ and GDS questionnaires)
- Enrolment numbers / diversity
- Recruitment and retention of world-class staff and students
- Student progression through available pathways
- Completions
- Compliance against auditable standards
- Staff Teaching Awards
- Growth in the number of staff holding a Graduate Certificate (Higher Education)

2. Research

The School of Physics significantly contributes to the research success of the University, carrying out experimental, computational and theoretical research over a wide range of disciplines from nanoscience to astronomy. We host two ARC Centres of Excellence: the Centre for Ultrahigh Bandwidth Devices for Optical Systems (CUDOS); and the Centre for All-Sky Astrophysics (CAASTRO) and are partners in several other national centres, including the ARC Centre of Excellence in Particle Physics at the Terascale (CoEPP), Centre for Engineered Quantum Systems (EQUS), Centre for Quantum Computation and Communication Technology (CQC2T), Centre for Integrated Research and Understanding of Sleep (CIRUS), Cooperative Research Centre for Alertness, Safety and Productivity and Cooperative Research Centre for Cell Therapy Manufacturing. The School also receives significant funding from overseas, including IARPA (Intelligence Advanced Research Projects Activity) and Lockheed Martin.
These high-level research activities raise the profile of both the School and the University, but also require additional resources to support the administration of the School’s research programs, grants and research outputs.

In the period 2013-15, we aim to:

<table>
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<tr>
<th>Research Strategies</th>
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<tr>
<td>• Develop tools for benchmarking the School’s research against key national and international indicators (e.g. Shanghai Jiao Tong index, ERA).</td>
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<tr>
<td>• Achieve ERA Ranking of 5 for Physics and all its research areas in the next round (2008 – 2013).</td>
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<tr>
<td>• Strategically align research students to individual researchers and discipline areas.</td>
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<tr>
<td>• Set and communicate clear benchmarks for research productivity.</td>
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<tr>
<td>• Increase the number of ARC Linkage Grants.</td>
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<td>• Broaden the overall funding base far beyond the standard ARC DP schemes.</td>
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<td>• Incorporate industry co-location/incubator opportunities into the AIN facility.</td>
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<td>• Encourage experiments with “Virtual Conferences”.</td>
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<tr>
<td>• Review the Visitors Program policy and layout a strategic approach to attracting high-level, high-profile international visitors.</td>
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<tr>
<td>• Implement a more structured communication strategy in promoting and advising of school activity and opportunities (e.g. colloquium and visiting scholars).</td>
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<tr>
<td>• Determine and implement a cross-disciplinary aspirational plan linked to the AIN.</td>
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<tr>
<td>• Identify and remove barriers to multi-disciplinary and cross-disciplinary research within the University of Sydney and beyond.</td>
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**Staff development strategies:**

• Develop and implement a professional development and support strategy aimed at Research Supervisors to ensure standards for research activity are maintained.
• Promote and support teaching and physics education research pathways for interested academic staff.
• Recognise the contribution of research staff and seek to enhance their research productivity through appropriate support.
• Invest in and re-invigorate new capacity within the school (through staff secondment opportunities; mentoring of staff at all levels (ECR, MCR, Senior), sabbaticals (ingoing and outgoing); visiting scholars).
• Encourage and support applications and nominations for prizes, grants, fellowships, awards and so on.

**Metrics:**
- Research / equipment funding
- Research outputs (e.g. number of publications in highly ranked journals)
- Number of Fellowships, prizes, grants and awards
- ERA and International rankings / outcomes
- Ratio of academic staff to HDR candidates
- Industry partnerships (Local and global)
- Impact
- Enhanced facilities / equipment
- Recruitment and retention of world-class staff and students

2.1 Women in the School of Physics

Physics is an area in which women are under-represented both nationally and globally. The School of Physics has been successful in recruiting and retaining excellent women scientists in the past (there are currently four women at level E and two at level D, and Anne Green served as Head of School from 2007-10), but the position of women academics in the School has deteriorated in recent years - women currently have lower visibility in the School and are under-represented both on School committees and in key teaching roles such as our Advanced Physics classes. Most of the continuing academic positions advertised in recent years have had few female applicants.

We recognise that diversity in our academic staff can boost our research and teaching substantially, and also give us a recruiting advantage over competitors in attracting top students.

In the period 2013-15, we aim to:

<table>
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<tr>
<th>Women in the School of Physics Strategies</th>
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<tbody>
<tr>
<td>• Recruit the best possible individual for each role and achieve gender equity.</td>
</tr>
<tr>
<td>• Provide adequate support to prevent loss of female academics from the workforce and ensure the school is an attractive working environment for qualified female candidates.</td>
</tr>
<tr>
<td>• Identify and promote strategic networking opportunities for ‘Women in the School’.</td>
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<tr>
<td>• Ensure that women are appropriately represented on School committees and have the opportunity to teach our top students.</td>
</tr>
<tr>
<td>• Engage female alumni and academics to give targeted talks to Undergraduates to advise female students on their career options and work life balance.</td>
</tr>
<tr>
<td>• Recruit and retain female students throughout the undergraduate and postgraduate years.</td>
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</table>

**Metrics:**
- Staffing and student profile / gender balance.
- Recruitment and retention of world-class female staff and students.
- Staff and student satisfaction as captured respectively in the ‘Voice-It’ survey and GDS/CEQ questionnaires.

3. Outreach

The School is engaged in a wide range of activities which aim to raise the public visibility and attractiveness of Science, Physics, and the School of Physics in general. The intended audience is diverse – school students, school teachers, visitors in the building, the general public, employers and (very importantly) our own alumni.

Kickstart:
The Kickstart Science Workshops are aimed at HSC science students and teachers. These workshops are designed to meet the demand expressed by science teachers in response to changes to the NSW HSC Science syllabus. Parts of the science syllabus require equipment or expertise in areas that many schools may not be able to provide. Kickstart workshops give HSC students a chance to do experiments and demonstrations of key ideas in the syllabus that are difficult to do in the classroom.

The School is significant contributor to Kickstart activity within the University and employs a dedicated Science Communicator who facilitates the Kickstart outreach program to local and regional high school students. In 2013, over 3,200 students attended 217 Kickstart workshops from over 152 schools.

Gifted & Talented Discovery Program:
The Science Gifted and Talented Discovery Program was established in 1996 and has had over 1,650 students participate since its inception. The aim of the program is to provide talented high school science students (in Years 9 and 10) with additional challenges and stimulation in the areas of biology, chemistry and physics.

The workshop also gives students an on-campus experience. It provides them with the opportunity to engage with University teaching staff and current researchers, access first-class facilities and connect with people who have a mutual interest in science.

International Science School:
The Professor Harry Messel International Science School ("ISS") is a visionary science program created for academically gifted high school students. The two-week fully residential curriculum is sponsored by the School of Physics through the Physics Foundation, which was established in 1954 and is dedicated to the pursuit of academic excellence. The ISS has been held on the University of Sydney campus since its inception in 1962 and, to date, well over 4,500 local and overseas students have attended.
Julius Sumner Miller Fellow:
The School is also home to one of Australia’s leading science communicators, the Julius Sumner Miller Fellow, Dr Karl Kruszelnicki.

The Julius Sumner Miller Fellow has a special role with both primary and secondary schools all over Australia. Already, some 8 tons of New Scientist magazines (worth about $200,000 at news agency prices) have been sent to some 115 schools around Australia - with a special emphasis on remote schools, and disadvantaged schools. Also, the current Fellow performs many school visits each month, at no cost to the schools, with a special emphasis on girls' schools and disadvantaged schools. Burwood Girls High School receives special attention - extra copies of science journals, and more frequent visits as part of a structured program that links to their curriculum.

In the period 2013-15, we aim to:

<table>
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<tr>
<th>Outreach Strategies</th>
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<tr>
<td>• Develop a defined Outreach Strategy with support from the Science Communicator and the Outreach Committee.</td>
</tr>
<tr>
<td>• Expand our partnerships with specific schools and community organisations to raise awareness of the value of tertiary education, support educational attainment, and increase aspirations for further study.</td>
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<tr>
<td>• Grow Kick-Start numbers and continue with Kick-Start-on-the Road with a focus on attracting students from School’s in rural, indigenous and low SES regions.</td>
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<tr>
<td>• Determine the scope and viability of the next generation of the ISS.</td>
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</table>

Metrics:
- Growth in Outreach participation
- Recruitment and retention of the most promising students from different backgrounds
- Budget to show a profit (to ensure future sustainability of activity and offerings)
- Conversion of Outreach participants to future enrolments

4. Marketing and Fundraising

The School has enjoyed a long and productive relationship with the Physics Foundation (formerly the Science Foundation for Physics) and aims to review this relationship in order to enhance and develop major philanthropic funding opportunities. Opportunities exist to engage the Foundation in assisting the School to raise funds for major projects such as the AIN, endowed Chairs and other projects such the creation of a Graduate School of Physics. The research possibilities of the School were further enhanced in 2011 by a $5M gift from John Hooke CBE, former Chairman and CEO of Amalgamated
Wireless Australasia (AWA) to endow a new academic chair in Nanosciences. To assist it in fundraising the School must continue to raise and broaden its media profile and ensure its marketing and promotional activities and materials are of the highest standard.

In addition, as with academic staff, students are increasingly geographically mobile. The School attracts a very high percentage of high ATAR New South Wales-based undergraduate students but cannot take its position for granted. The School must also be prepared to attract quality undergraduate students from inter-state. The opportunity exists to re-think the manner in which Honours and PhD/MSc programs are delivered and organised to differentiate the Sydney Physics PhD experience through the formation of a Graduate School. In terms of research training, the School’s objective is to double the number of PhD students over the coming five years which will necessitate attracting high-calibre individuals from overseas.

In the period 2013-15, we aim to:

<table>
<thead>
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<th>Marketing and Fundraising Strategies</th>
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<tbody>
<tr>
<td>• Develop a School Marketing and Development Plan, in consultation with the Student Recruitment and Admissions Group with a focus on targeting those from indigenous, rural or low SES backgrounds.</td>
</tr>
<tr>
<td>• Continue to raise and broaden our media profile, and ensure that our marketing and promotional activities and materials are of the highest standard.</td>
</tr>
<tr>
<td>• Determine the future of the Physics Foundation; its structure and purpose.</td>
</tr>
<tr>
<td>• Review and clarify roles and accountabilities in supporting fundraising and marketing efforts for the School and Foundation.</td>
</tr>
<tr>
<td>• Actively engage with alumni from indigenous, rural or low SES backgrounds to act as role models and share success stories.</td>
</tr>
<tr>
<td>• Enhance the School web site in attracting the best and most promising students locally, nationally and globally.</td>
</tr>
<tr>
<td>• ISS bi-annual program to be reviewed through consultation with the Foundation sub-committee.</td>
</tr>
<tr>
<td>• Work collaboratively with the University Development Office in developing and growing our philanthropic and fund raising efforts.</td>
</tr>
<tr>
<td>• Develop an enhanced strategy to better engage with our alumni and develop collaborative networks for research and T&amp;L.</td>
</tr>
<tr>
<td>• Set fundraising priorities and targets with the Foundation aligned to the School’s Strategic Plans and priorities e.g. four new endowed Chairs, the fit out of the AIN and support for the Graduate School.</td>
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Staff Development Strategies:

- All administrative staff appointed, who do not have prior web-development experience or qualifications will be required to complete the CMS training.
- Enhance communication and engagement with key stakeholders from the University Development Office, Faculty and Student Recruitment and Admissions Group.

Metrics:
- Donations (($)’s)
- Student recruitment (enrolment numbers, diversity, retention)

5. School Facilities and Accommodation

Obtaining adequate building facilities to meet growth needs has been a challenge for the School in recent years. To this end, in 2010 The University of Sydney successfully secured a $40 million contribution from Federal Government to build the new Australian Institute for Nanoscience (AIN).

The case for a new building to house advanced physical sciences research laboratories and leading edge teaching facilities was motivated by the success of the School of Physics in attracting ever-increasing numbers of senior-level undergraduate and postgraduate students, and the outstanding performance of its researchers in attracting research grants including six Centre’s of Excellence, two of which are headquartered in the School. These Centres include world-leading programs in quantum science and photonics that, for maximum research impact, require access to state-of-the-art nanofabrication technologies. The University had previously made a strategic investment in such capabilities by purchasing Bandwidth Foundry International (BFI) and winning support for BFI to install and operate an optical stepper lithography tool, the first in Australia available for open researcher access.

The case was therefore developed for a new building with:

- A new clean room housing nano-fabrication tools built around the BFI capability;
- Advanced research laboratories with the environmental controls and services required to conduct research at the forefront of physics in areas like Quantum science, nano-photonics, and advanced materials science;
- New classroom and laboratory-based teaching facilities ranging from a large 320 seat theatre to accommodate first year teaching, to a 90 seat collaborative learning studio and a senior undergraduate teaching laboratory.

In building the Australian Institute of Nanoscience, the School has a once in a generation opportunity to ensure that the new building is of a high standard and appropriately
fitted out with experimental equipment and technical and support staff. The School must also ensure that staff has ongoing, long term access to major national and international research infrastructure such as the Square Kilometer Array (SKA), supercomputing and existing and new experimental facilities.

Over the coming years there will be a focus on ensuring that the new AIN building is equipped with world class research and teaching infrastructure. This will involve suitable applications to established funding schemes, such as ARC LIEF, as well as the development of links with government and industry.

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<tr>
<th>School Facilities and Accommodation Strategies</th>
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<tbody>
<tr>
<td>• Strategically identify and plan future space and accommodation needs through a documented Infrastructure and Accommodation Strategic planning document.</td>
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<tr>
<td>• Work with the Foundation and other donors to ensure that the new AIN building is well equipped.</td>
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<tr>
<td>• Leverage the AIN to increase industry collaboration for research investment.</td>
</tr>
<tr>
<td>• Conduct a review of the centralised Workshop structure and implement recommendations (2013).</td>
</tr>
<tr>
<td>• Incorporate industry co-location/incubator opportunities into the AIN facility.</td>
</tr>
<tr>
<td>• Establish leading technical capabilities through the implementation of a new and shared Workshop model and IT support for research.</td>
</tr>
<tr>
<td>• Effectively utilise innovative teaching spaces in the new building.</td>
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</table>

Staff Development Strategies:

• Implement a professional development and training program aimed, at the School Technical team, focused in the techniques of experimental physics including nanolithography, microscopy, and nanoscale device characterization.
• Identify, plan and implement a succession plan for key technical staff / positions.
• Support appropriate professional development for all staff as identified through the AP&D and PM&D process.

Metrics:
- Implementation of an Infrastructure and Accommodation Strategic Plan
- Research and equipment funding
- Recruitment and retention of world-class staff and students
6. Management and Governance

Our focus for the next two years is on making the School’s internal administrative and advisory structures as effective as possible, and ensuring that we have access to the necessary financial resources to grow sustainably.

The past twelve months have seen substantial changes in this area, with a new Head of School, a new Administration Manager, a new Senior Technical Operations Manager, a new Finance Manager and a substantial restructure of the School’s administrative, technical and support staff. This provides an opportunity to re-examine some of the key advisory and communication structures within the School – communications are particularly important because members of the School are currently spread over at least four geographically-separated locations during construction of the new AIN/Physics building.

In the period 2013-15, we aim to:

<table>
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<tr>
<th>Management and Governance Strategies</th>
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<tr>
<td>• Finalise implementation of the 2012 General Staff Review recommendations.</td>
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<tr>
<td>• Conduct a review of the School IT function and structure and implement recommendations (2013).</td>
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<td>• Systematically identify and implement efficiencies and improvements in administration, teaching and research procedures.</td>
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<td>• Develop and enhance the School web in ensuring that staff understand our management structures, processes and policies.</td>
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<td>• Provide training for committee Chairs, to ensure that they are aware of the responsibilities and expectations associated with their role.</td>
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<td>• Reinstall an annual School Planning Day at which the Head of School, senior academics and committee chairs review the past year and plan for the year ahead.</td>
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<td>• Set up an effective process for collecting and analyzing the demographic data of staff and students needed for planning and benchmarking exercises.</td>
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<td>• Promote good communications within a currently geographically-dispersed School.</td>
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<tr>
<td>• Review the School’s internal advisory structure and academic committees to ensure that these work (and communicate) effectively.</td>
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<td>• Draft and implement a School WHS Safety Plan.</td>
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<td>• Lobby the University to adjust the UEM to reflect the true cost of carrying out research. Quantify costs of doing different kinds of research in order to bolster this argument.</td>
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<td>• Better understand and communicate the UEM model to key school stakeholders in more effectively managing the School budget.</td>
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**Staff Development Strategies:**

- Identify and support appropriate management training for the senior academic and Professional management team.
- Support appropriate professional development for all staff as identified through the AP&D and PM&D process.
- All staff to be actively engaged and supported to participate in the AP&D and PM&D process.
- Identify, plan and implement a succession plan for key staff / positions.
- Increase our investment in general staff development opportunities and encourage and support staff to enhance their qualifications.

**Metrics:**

- Staff satisfaction as measured through the ‘Voice-It’ survey
- Staffing levels (Staff turnover, demographics)
- Annual budget performance
- Implementation of a recruitment, induction and training strategy
- Quality of service provision
- Compliance against University Policies and quality benchmarks