

Physics Matters

A Birthday Celebration Extraordinaire!

The Conference in Honour of Murray Gell-Mann's 80th Birthday held at the idyllic premises of the Institute of Advanced Studies at Nanyang Technological University (NTU) was no ordinary one. Graced by Nobel Laureates Profs Yang Chen Ning, Kenneth Geddes Wilson, Gerard 't Hooft and several renowned scientists, it was an occasion to celebrate Prof Gell-Mann's contributions to the fundamental sciences.

The 3-day conference (24 – 26 Feb 10) attracted 249 participants from 33 countries including Germany, China and Australia. Physics education was also discussed besides topics on elementary particles, quantum cosmology and complexity. Profs Harald Fritzsch and George Zweig both gave a light-hearted account of their encounters with Prof Gell-Mann.

One of today's most distinguished scientists, Prof Gell-Mann is currently Distinguished Fellow at the Santa Fe Institute as well as the Robert Andrews Millikan Professor Emeritus at the California Institute of Technology since 1955. He received the Nobel Prize in Physics in 1969 for his work on the theory of elementary particles.

A discoverer of what he named "quarks", the fundamental building blocks of matter, Prof Gell-Mann and others constructed the quantum field



Prof Gell-Mann (seated second from left) at a dinner session

theory of quarks and gluons, called "quantum chromodynamics," which seems to account for all the nuclear particles and their strong interactions.

During the conference, Mr Lim Chuan Poh, Chairman of A*STAR, paid tribute to Prof Gell-Mann for his efforts in deepening our understanding of the laws of nature. Prof Kenneth Young from the Chinese University of Hong Kong also spoke affectionately about his former PhD mentor.

The performances by students from Hwa Chong Institution during the birthday banquet culminated in a celebratory birthday song. Prof Gell-Mann was visibly moved by the gesture of the audience and, to him and many of the participants, this must truly be an unforgettable birthday conference!

Our Distinguished Visitor

Here to give a lecture organised by the Institute of Advanced Studies, NTU, Prof Yang Chen Ning made a visit to the Physics Department on 23 Feb. Staff and students had a rare chance to engage with our distinguished Nobel Laureate in an informal meeting.

Fielding questions from string theory to career in Physics and also sharing about his days at Princeton, Prof Yang was in his usual modest and thoughtful composure. He said that while it may be harder to work on fundamental physics today, the applications of physics have opened many new opportunities for physics graduates.

Prof Yang also recounted his visit to the university before Singapore became independent. He is deeply impressed by the nation's development since then.

In 1957, Prof Yang and Prof Lee Tsung-Dao received the Nobel Prize in Physics for their works on the law of conservation of parity. Together with Prof Robert Mills, he proposed the famous "Yang-Mills" theory which is considered a basis of modern physics.



Prof C N Yang facing an anticipative audience

Prof Yang is currently Emeritus Professor with the State University of New York at Stony Brook, where he also became the Albert Einstein Professor of Physics and the first director of a newly founded Institute for Theoretical Physics which is now known as the C N Yang Institute for Theoretical Physics.

A prolific writer and a recipient of numerous prestigious awards and honorary degrees as well as a member of several academies, Prof Yang holds a number of lectureships with universities spanning three continents. It is indeed an honour to come face to face with Prof Yang.

Inside this issue:

Germany Immersion Trip GIT 2010	2
Physics China Immersion Programme CHIP 2010	2
An Interview with...	3
Physics in Action!	4
Discovering Physics	5
High School Students Supervised by Physics Graduate Student	6
A Day in the Life of...	6
And the Award Goes to...	7
Awards	7
Our Graduating Students	8
Announcements	8



Germany Immersion Trip, GIT 2010

The third of such trips organized by Prof Englert and A/P Osipowicz, GIT 2010 from 2 to 22 June attracted a total of 18 physics undergraduates. The trip covered mainly Munich and Göttingen.

We spent our first 13 days in Munich and stayed at the Euro Youth Hotel. Guided tours were arranged for us at Marienplatz and Dachau and we were briefed about the history of Munich and the concentration camps.



Group photos taken during the trip

The seminars and lab tours at Ludwig-Maximilians-Universität (LMU) and Max-Planck Institutes were educational and exposed us to the different research areas in Munich. We had an astonishing time at the Deutsches Museum which houses various exhibits from airplanes to physics apparatus. Our German friends Max and Eyleen brought us around and we enjoyed their company and also the wonderful welcome and farewell dinners hosted by the LMU Faculty of Physics.

Next, we took a train ride to Göttingen, where we stayed 6 days at Mariaspring hostel. We visited the town centre, an observatory at Georg-August-Universität and various palaces around Göttingen. We were thrilled to visit PhyWe, a supplier of experimental equipment, to witness the various science demonstrations and also the product manufacturing process. The Göttingen trip ended with a barbeque farewell dinner at Mariaspring.

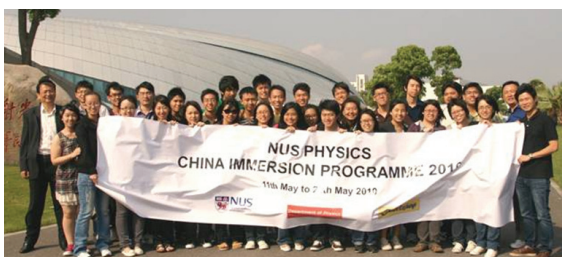


GIT 2010 would not be successful without the assistance of the organisers, funding from the Faculty of Science and the Physics Department and the collaboration with LMU and Georg-August-Universität. We have greatly benefitted from the exposure to the education, history, culture, food, weather, and, last but not least, the company of friends. It is really a wonderful experience to visit such a beautiful country and I will certainly encourage my physics juniors to sign up for future GIT. GIT rocks!

Contributed by Chang Sheb Lit,
an honours-year physics major



Physics China Immersion Programme, CHIP 2010



Group photo at the Shanghai Synchrotron Radiation Facility

From 11 – 24 May, we led a group of 33 students for CHIP 2010. The trip covered a few places in the less thriving Anhui province and also a flourishing Shanghai. It is hoped that students would acquire a more holistic view of China at the end.

Our group went to the University of Science and Technology of China located in Hefei, the capital of Anhui. It is ranked among the top three research universities in China. In Shanghai, we stepped into Fudan University, which is as old as NUS and ranked among the top five universities in China, and Donghua University which is ranked top in fibers and textiles research and

engineering. Our students had a great time interacting with the local students.

We also visited the Shanghai Institute of Applied Physics, Chinese Academy of Science, the Shanghai Synchrotron Radiation Facility – the biggest in China and fourth in the world – as well as Baogang, the largest iron and steel conglomerate in China. It proved to be an eye-opening lesson for students on the applications of physics.

Our stay in Huangshan, literally 'Yellow Mountain', was most enjoyable. A luring tourist hotspot just like the Great Wall and Terracotta Warriors, our students were deeply impressed by its unique pines and peak formations, mesmerizing clouds, clear hot springs, and Hongcun, a UNESCO world heritage site located at its foot. The trip to the Shanghai Expo 2010 turned out to be another exciting experience for everyone.

We were glad CHIP 2010 promised to be an engaging and educational trip and look forward to organising the next trip!

Lim Jiewen
"From the Chinese people, I have learnt to treasure my own country and culture and learnt determination, loyalty and perseverance... I gain more friends, know more of China and also its science education and research activities."

Lam Siew Peng Serene
"CHIP was unforgettable. I conquered Huangshan, completed two days of World Expo on my aching foot, interacted with local students, heard stories behind Hongcun... This lifetime experience and the memories created were simply indescribable."



Contributed by
Prof Lin Xiang-Yang & Dr Lin Ruchuan
Organising Committee for CHIP

An Interview with ...

Miss Sharon Chang Ci'En graduated a year ago with first-class honours from the Physics Department. Now an optical engineer with the Defence Science Organisation, Sharon was the recipient of the Outstanding Undergraduate Research Prize and the Jurong Shipyard Prize and also an IPS Medalist. The following is an email interview with Sharon.

What attracted you to major in Physics?

I have been very blessed with dedicated and good physics teachers in both my secondary and junior college days. They left a very deep impression on me by introducing the subject of physics in such enjoyable and interesting ways that I was captivated and intrigued by it. Furthermore, physics stands out among the sciences due to its relevance and practical value in our daily lives.

As an undergraduate, what were some challenges you face and how did you manage them?

Honestly, I had a difficult time adjusting to university life. Time management topped my list of challenges. In the beginning, I was trying to get used to the workload and long hours at school, yet find the time for tutorials, reports and some rest. Juggling my intensive UROPS and FYP with regular modules was not easy. I made full use of my available breaks between lessons to finish up what I could. Sacrificing some sleep and recreation time was inevitable too, but I more than made up for it during the holidays!

Any time for non-academic pursuits?

I was not in any CCA, but that did not mean that I buried myself in books 24/7. During a few semester breaks, I

volunteered in the NUS summer programme as a tour guide and brought our foreign friends around Singapore. I also helped out in the Physics outreach to schools, contributed to the Physics newsletter and was an emcee for a conference and the farewell occasion of our former NUS President. Life became more colourful for me and I gained a lot of life experience as a result.

In your opinion, what career opportunities does physics offer?

I think the top two career prospects are teaching and research. This may come as no surprise but in reality, I think physics opens many more opportunities. One area I could think of is the financial sector which would value individuals with the rigorous analytical training that all physics graduates received. I believe that our graduates would also fit into some civil service jobs well due to their ability to think critically and logically.

How relevant is physics in your present work?

Physics is definitely very relevant to my current work, especially the fields of electromagnetism, waves and interaction of light with matter. There is, however, still a myriad of things that I have to learn on the job, specifically the more 'engineering' or hands-on aspect. Nonetheless, the strong physics foundation I had been drilled with comes in very handy.

In general, how do you think you and your peers have benefitted from a university education?

I feel that the greatest benefit from a university education is not so much the

increase in knowledge as is the holistic development and growth of a person. We got to mingle with people with diverse backgrounds and were exposed to new ideas, as a result enabling us to approach problems from whole new different perspectives. The compulsory breadth and GEM modules promised to throw us off our comfort zone into unknown challenging fields. But at the end, we could see how our adaptability led to a broadening of minds.

Finally, any advice to give to your physics juniors?

Enjoy university life as it is really one of the best times of your life! In the midst of having fun, making friends, going out and so on, do spare the time to study and strive to achieve your best. Never do last-minute cramming, it rarely works (for me at least). Strike a balance between work and play – this strategy should keep you sane. Learn to pick yourself up when things do not seem to go your way – failures, disappointments and 'scolding' received are all part of the growing up process.

Plan ahead for whatever career path you intend to pursue and apply for jobs early, starting one year before graduation if possible. Try out internships or temporary jobs at various companies to determine where your interest lies. In addition, develop social and soft skills along the way as they will come in very handy in life.



- ➡ Sharon geared up for work on her UROPS project
- ⬆ Getting ready for her UROPS presentation
- ➡ At the commencement ceremony 2009

Physics in Action!

Science Demonstration Lab: Introducing Interactive Demonstrations in Science Teaching

If we check the dictionary for the meaning of the word “demonstrate”, we would find teaching-related definitions such as “To describe, explain or illustrate by examples, specimens, experiments or the like”, “To manifest or exhibit”, “To show clearly” and “To prove or make clear by reasoning or evidence”.

In the teaching of science subjects, demonstrations are powerful means for activating students’ interest, focusing their attention and initiating learning. Demonstrations in class can also engage the mind of students to perceive, filter and transform sensory data into concepts and models. It helps students to observe, serves to illustrate principles and stimulates thinking.

For many students, words alone may not be sufficient to promote conceptual learning during class. Learning science vocabulary, syntax and grammar does not automatically translate into comprehension or the ability to apply knowledge in a practical context. If a teacher relies primarily on abstract words, symbols and equations, students may not even sense there’s a discrepancy. Attempts to “cover” the textbook do not necessarily result in “uncovering” key concepts and processes in the mind of a student. In addition, it may be a common misconception to students that science concepts only apply to the science classroom and not the real world.

To correct any misconception and achieve greater understanding, science teachers could introduce demonstrations in their teaching to provide opportunities for students to observe, become involved with and reflect on scientific phenomena. Minds-on demonstrations with teacher-controlled experimental conditions create an environment where students’ ideas, hypotheses and possible misconceptions can be tested immediately or challenged. This is



Physics becomes a delight to little children when it turns into action by A/P Sow Chong Haur!



especially so when they witness a phenomenon that is counter-intuitive.

Furthermore, students can be taught how to observe, formulate questions and reason about science by way of example, after which variations to the same demonstration can be made to test students’ predictions on the anticipated behaviour of the system based on the concepts they have developed. This naturally generates a great deal of excitement among students as their understanding is put to the test and their enthusiasm reinforced.

During the past few years, we had a lot of fun developing a Science Demonstration Lab (SDL) in the Science Faculty. With lots of interactive hands-on apparatus around, it is hoped that SDL is where learning begins as a fun-filled journey of discovery.

We started off with about 30 experiments and continue to expand till now. Some of the experiments were purchased commercially while the rest were designed and constructed in-house. We are very fortunate to have supportive staff and students who have been assisting in the development of SDL. The design and construction of a new demonstration will be carried out after an initial brainstorming. This is usually followed by many rounds of fine-tuning. Most importantly, we have learned so much in the process!

Now comprising over 60 different experiments, SDL provides a hands-on environment for students and visitors. Experienced instructors are present to

act as guides to visitors as they make their scientific discoveries. It is a place to observe many interesting phenomena, including the often counter-intuitive ones. This helps to generate great curiosity among students. One could frequently hear sounds of laughter, wonderment and amazement from students and visitors on a trip to the lab.

Lecturers could make use of any setup in SDL to improve the quality of their teaching tremendously. For example, a lecturer could proceed to teach accompanied by a trolley of demonstration apparatus. We call this the mobile physics lab.

By moving the mobile physics lab into the classroom, we can provide vivid illustrations of physical principles which will certainly help students to relate abstract concepts with real-life phenomena. They would appreciate any concept better and become more engaged in their learning. Since the attention span of an individual is limited, timely illustrations will break the monotony of a lecture and help students stay focused. Moments of laughter will of course go a long way in creating a positive learning atmosphere.

Useful References:

Charles Taylor, *The Art and Science of Lecture Demonstration*.

Thomas O’Brien, “The Science and Art of Science Demonstrations”, *Journal of Chemical Education* **68**, 933 (1991).

Contributed by
A/P Sow Chong Haur



Discovering Physics

Three research works recently published in prestigious journals were results of efforts by students in our department and their collaborators. The works are summarized and reproduced here with comments by the students themselves.

Ferromagnetism in Dilute Magnetic Semiconductors through Defect Engineering: Li-Doped ZnO

The story began when I approached Prof Feng Yuan Ping for a UROPS project and was promptly directed to work in simulating suitable materials for spintronics application. Compared to normal semiconductors that use the charge property of electrons to perform computational tasks, Dilute Magnetic Semiconductors (DMS) can exploit both the spin and charge properties of electrons to process information.



Lim Chin Chean (in light-blue T-shirt) with the Theoretical and Computational Condensed Matter Physics Research Group

Consequently, this carries the prospect of bringing information technology into a whole new paradigm. Collaborating with A/P Ding Jun from the Department of Materials Science and Engineering, we sought to understand the magnetic behavior of zinc oxide (ZnO) with various dopants through lab experiments and computer simulations. Surprisingly, we found that the concentration of lithium in ZnO could affect the presence of defects in ZnO. This in turn enables one to control the magnetic property of ZnO since certain defects in ZnO could induce magnetization on ZnO.

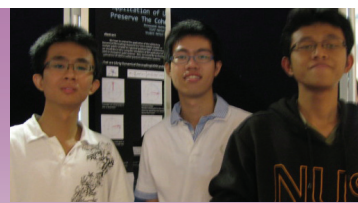
What inspires me most from this UROPS project is how relatively simple physical reasons could provide one with a good picture of baffling experimental results. Moreover, these physical deductions could be tested further experimentally, inspiring confidence on the deductions that were made. This, indeed, is a wonderful experience for me in the world of scientific research.

Abstract — <http://prl.aps.org/abstract/PRL/v104/i13/e137201>

Contributed by Lim Chin Chean

Universal dynamical decoupling: Two-qubit states and beyond

It is not surprising if people find Quantum Mechanics counter-intuitive. Yet quantum weirdness can turn to our advantage in the field of Quantum Computation. We pursued our interest in this topic with our research about Quantum Computation and Decoherence in module SP2171. We found the idea of improved computational speed by controlling the quantum phases of quantum system ingenious. However, decoherence becomes the biggest obstacle due to the interaction with environment that induces random noise. We were motivated to work on this field.



From left - Soh Wee Tee, Saw Thuan Beng and Musawwadah Mukhtar

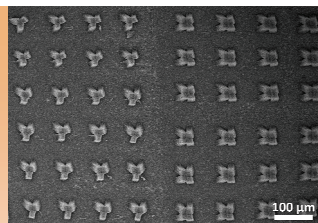
We did a project about dynamical decoupling as one effective method to preserving the coherence of qubit system. We found research work resembling a game of tackling problems. Our project emphasised literature review. We read a number of journal papers and then tried to identify as far as possible the problems that quantum physicists were trying to solve and the methods they used. Under the supervision of A/P Gong Jiangbin, we finally arrived at a way of extending a solving method from one-qubit system to multi-qubit system. It holds promising application for quantum entanglement preservation.

We were honoured to have our research published in *Physical Review A*. We were also excited to be awarded the Outstanding Undergraduate Research Prize. They are bonuses to us! But we are most happy with this being our first research experience. We wish to proceed to the next 'game'!

Abstract — <http://pra.aps.org/abstract/PRA/v81/i1/e012331> Contributed by Musawwadah Mukhtar, Saw Thuan Beng and Soh Wee Tee

Capillarity-Assisted Assembly of Carbon Nanotube Microstructures with Organised Initiations

Well-defined structures created via nanoscale materials are progressively becoming a key technology in the process of material fabrication. As such, a simple yet efficient method is desired to facilitate such progress. One such method is self-assembly. With carbon nanotubes (CNTs) showing great potential in various applications as a result of their unique properties, investigations were carried out on the ability to use water as a tool to assist the assembly of CNTs into desired structures.



An SEM image of capillarity-assisted, ordered top-gathering of three and four MWNT pillars

In addition, by implementing a dip-dry method involving the use of ethanol, large-scale aligned and twisted CNT micro-belts were packed onto the substrate surfaces. Detailed I-V measurements of the respective type of packed CNT micro-belts further showed that by twisting densified microwalled nanotube (MWNT) micro-belts, resistivity of the micro-belts was found to improve by 14 times as compared to un-densified MWNT micro-walls.

The techniques presented in this paper thus provided a means for further developments in controlling the architecture of the CNTs. We believe that such control over the CNT structures could come in useful in the creations of future CNT-based devices and packing systems.

Abstract — <http://pubs.acs.org/doi/abs/10.1021/nn9012109>

Contributed by Lim Xiaodai Sharon

High School Students Supervised by Physics Graduate Student

The Taiwan International Science Fair (TISF), organised by the National Taiwan Science Education Center, aims to inspire scientific research among high school students, raise public awareness of science and also promote cross-cultural and academic exchange between students of diverse backgrounds.

TISF 2010 from 1 – 7 Feb attracted 175 local and 23 overseas participants from 13 nations. They were divided into the domestic and overseas groups. 128 projects (including 21 from overseas) featuring mathematics to environmental science were showcased.

Three students from Dunman High School – Phua Yi Hui, Nicole Chew and Siswo Hartoyo – won the 2nd prize with their project entitled “Carbon Nanotubes as Efficient Nanosieve for Controlled Assembly of Nanoparticles”. The team was selected by MOE to represent Singapore and had worked extensively on their research in the



From left: Siswo Hartoyo, Nicole Chew and Phua Yi Hui presenting their award to their school principal

Physics Department last year with close supervision by A/P Sow Chorng Haur's student Sharon Lim Xiaodai.

Sharon, a physics graduate student in the Nanomaterials Research Laboratory, was proud of the achievement by the students. “With much dedication and a ‘never-say-die’ attitude, the students’



Sharon (left) supervising her students in the lab

efforts finally paid off. I hope that this award, together with the fun-filled experiences that they had in the laboratory, would inspire them to pursue scientific research in greater depths in the future.”

Hear what our award recipients have to say about what their award meant to them.



“This award serves as a great source of encouragement to me as I continue to strive towards completing each task with the best of my ability. I would also like to use this opportunity to thank my colleagues for their continuous support and cooperation.”

Mdm Tay Bee Hwee
Service Champion Awardee



“I found the teaching journey to be very fulfilling because of the dynamism of my students. This challenges me to match their enthusiasm through experimental demonstrations so that they seek nature as the final arbiter for their scientific enquiries. I am especially grateful for the academic support of the Physics department and Science Faculty.”

A/P Phil Chan Aik Hui
Outstanding Educator Awardee

A Day in the Life of ...

It is hardly a surprise that Mr Kek Chun Peng, Ben, was a recipient of the most recent Service Achiever Award conferred by the Office of Quality Management on individuals who shine on customer service. “This award recognised my effort and good work done. Certainly it will motivate me in my next level of work,” said an upbeat Ben.

For Ben, the Physics Department feels like a second home in his past seven years here. At ease with colleagues and turning to them when he needs advice, he feels that every job challenge is where learning begins. “My greatest satisfaction comes when someone has been helped by my service and is happy about it.”

As a Specialist Associate, Ben provides considerable technical support to office staff, students and faculty. Whether it is setting up audiovisual aids for teaching purposes, meetings or videoconferences, he makes sure every equipment is functioning at its best.

Acquiring skills like video editing and being up-to-date with the state-of-the-art technology are part of Ben's job. He often facilitates the smooth running of departmental



or faculty events from the NUS Open House, New Graduate Students Welcome Tea to the Teachers' Workshop. His day may also include attending to visiting professors and enquiries and publicising events.

Everyone admires Ben's creative art display on special occasions. He admits creativity is his favourite exploration in his free time. Jogging is his way to relieve the stresses of life. Ben believes everyone should be treated equally and thinks a smile is always therapeutic. He has a wish to keep exploring the world so it would appear smaller by the time he retires!

And the Award Goes to ...

"It takes determination to attain professional success, so when things get difficult, you have to grit your teeth and persevere." Working his way steadily and overcoming one obstacle after another, Prof Ong Chong Kim certainly is a physicist who lives by what he says.

A faculty with the Physics Department since 1981, Prof Ong was the recent recipient of the University Outstanding Researcher Award. In 2007, he also won the Faculty of Science Outstanding Scientist Award. He remains humble about any accolades but acknowledges they are an encouragement to him.

For a long time, Prof Ong has pursued his passion in the field of materials physics, in particular the electronics and nanostructures of oxide thin films, microwave measurement and materials characterisation, electromagnetic materials and photonics, superconductivity, magnetism and ferroelectricity.

An important breakthrough came when he demonstrated that crystalline yttrium-stabilised zirconium oxide can replace silicon oxide in metal-oxide semiconductors. This discovery has since been widely adopted in the semiconductor industry.



Prof Ong Chong Kim,
Winner of Outstanding
Researcher Award 2010



⇨ A
relaxing
moment
with
fellow
scientists
in Norway

An inventor with a US patent, his works saw applications from miniature microwave devices, computer simulation to the design of the perfect lens. His crucial role in fabricating the omnidirectional retroreflector capable of reflecting all light rays to their original source – once deemed an impossible feat – led to a world of practical applications, notably radar tracking.

Currently director of the Center for Superconducting and Magnetic Materials (CSMM) of the Physics Department, Prof Ong's greatest satisfaction comes from inspiring and motivating students and researchers in conducting basic research on functional materials and exploring their applications in new devices.

As a teaching staff, Prof Ong is very clear about what he hopes to build into our physics undergraduates.

"My main objective in teaching is to sharpen my students' ability to face the challenges of their future careers be it in physics or any other fields. To this end, in my teaching, I have always emphasised the development of independent

thinking and not the acquisition of specialised knowledge only.

If a student is able to master the fundamental concepts of a subject and learn to think and work independently, he will not only be a better scientist but a catalyst for transformation and innovation in whatever career he chooses to take on.

The spirit and drive for lifelong learning and change are one of the keys to personal success and at a higher level, one of the basic elements necessary for the economic development of our nation."

Prof Ong's take on the physics education of yesterday and today is that they are essentially the same. He advocates discussion in the classroom strongly and thinks students enjoy it too. To him, this is the most effective learning route and the only way for students to be sure they have really understood the lectures. By defending a point during a discussion they learn how to present what they have in mind, be quick to respond to questions raised and to work as a team.

It is not all work and no play for Prof Ong who always enjoys a game of tennis and swimming besides gardening.



⇨ Prof Ong with his research group in the
CSMM lab

Awards

Congratulations to our fellow colleagues and students for being the proud recipients of the following awards!

Outstanding Educator Award:
A/P Chan Aik Hui, Phil

Outstanding Researcher Award:
Prof Ong Chong Kim

Young Researcher Award:
A/P Dagomir Kaszlikowski

2009 National Excellent (Self-Financed)
Overseas Chinese PhD Student Award
of the People's Republic of China
Dr Yang Nuo & Mr Yao Donglai
(both in Prof Li Baowen's research group)

The Inaugural SMF-NUS Research
Horizons Award: *Dr Barbaros Oezylmaz*

Congratulations to *A/P Sow Chong Haur*
for having mentored three winning

school projects (gold, silver and bronze)
at the recent Singapore Science and
Engineering Fair (SSEF) 2010.

NUS Quality Service Award 2009:
Service Champion: *Mdm Tay Bee Hwee*

Service Achievers: *Mr Kek Chun Peng, Ben*
Mrs Lee Soo Mien
Mr Teo Hoon Hwee

Our Graduating Students - Congratulations Class of 2010!

BSc Students

- 1 Ang Shi Da
- 2 Ang Waye Ning
- 3 Chen Liying
- 4 Chen Yuxiang
- 5 Chia Chen Ming
- 6 Choong Wai Hua
- 7 Gao Shuai
- 8 Ho Hui Kiat Melvyn
- 9 Kuang Jianhong
- 10 Lee Chew Chin
- 11 Lek Wee Keat
- 12 Lim Jia Hui
- 13 Loh Xing Yee
- 14 Murali Ramachandran
- 15 Qiu Xun
- 16 Qurratu'Aini bte Mohamad Said
- 17 Suraj K
- 18 Tan Hwai Yik Marcus^①
- 19 Vinodhini a/p M Selveindran
- 20 Wang Wei
- 21 Xing Wenkang
- 22 Yeo Wei Yong Andy
- 23 Yun Tao
- 24 Zhang Jinfeng
- 25 Zhang Xin

BSc (Hons) Students

- 1 Chan Min Min
- 2 Chang Sheh Lit^②
- 3 Chen Zhanjiang
- 4 Chen Zhixiu
- 5 Goh Jing Qiang
- 6 He Haitao
- 7 Ho Yuda
- 8 Jayesh Kumar Jasvantlal
- 9 Kok Yee Chin
- 10 Koon Kok Wai Gavin
- 11 Lee Chee Kong
- 12 Liew Ji Wei
- 13 Lim Chin Chean
- 14 Lim Gi Wen
- 15 Low Lerh Feng^③
- 16 Ng Boon Peng Benjamin
- 17 Qiu Junjie Alvin
- 18 Setiawan Jeffrey
- 19 Shang Jiangwei
- 20 Shi Wenyuan^④
- 21 Siti Nur 'Aisyah bte Md Johari
- 22 Tan Kok Chuan Bobby
- 23 Tan Wei Lin^⑤
- 24 Tang Cheng
- 25 Tang Jingwen
- 26 Tay Young Soon
- 27 Teo Wei Han
- 28 Teo Zhi Wei Colin
- 29 Thiang Guo Chuan^⑥
- 30 Wee Kin Guan
- 31 Yang Tzyh Haur^④
- 32 Yap Tiong Leh
- 33 Ye Dan^⑤
- 34 Zhao Qifang

MSc Students

- 1 Bernard Ricardo Widjaja
- 2 Chen Xin
- 3 Harry Berkhoff
- 4 Ho Le Tuan Anh
- 5 Lim Xiaodai Sharon
- 6 Matthew Peloso
- 7 Poh Hou Shun
- 8 Tabia Gelo Noel Macuja
- 9 Xie Yilin
- 10 Yong Chaw Keong

PhD Students

- 1 Chan Taw Kuei
- 2 Dario Poletti^⑦
- 3 Kho Kiang Wei
- 4 Lim Tze Wei Leonard
- 5 Qi Dongchen
- 6 Sankaran Sivaramakrishnan
- 7 Sun Han
- 8 Wang Enbo
- 9 Wang Peng
- 10 Yang Ming
- 11 Yogesh Kumar Sharma
- 12 Zheng Yi

Legend

- ① Lee Kuan Yew Gold Medal, IES Gold Medal, ExxonMobil Medal, Asian Congress of Fluid Mechanics Book Prize, ISTEP-9 Fluid & Thermo Book Prize and Jurong Shipyard Prize
- ② Lee Kuan Yew Gold Medal, IES Gold Medal and Jurong Shipyard Prize
- ③ USP Scholar
- ④ Jurong Shipyard Prize
- ⑤ Jurong Shipyard Prize, NUS Medal for Outstanding Achievement and USP scholar
- ⑥ Lijen Industrial Development Medal, IPS Medal, Outstanding Undergraduate Researcher Prize, Sugar Industry of Singapore Book Prize and Jurong Shipyard Prize
- ⑦ Materials Research Society (Singapore) Medal



Announcements

Conferences:

Workshop on Spontaneous Energy Focusing Phenomena and Multiscale Physics

30 Aug – 3 Sep 2010, NEC, NTU

Contact: Mr Kel Lee, Email: LASJSF@ntu.edu.sg

6th Singapore-China Joint Symposium on Research Frontiers in Physics

21 – 23 Sep 2010, Xi'an, China

Contact: Xia Minggang, Email: xiamg@mail.xjtu.edu.cn

2010 National Conference of Physics

28 – 30 Oct 2010, Damai Lant, Perak, Malaysia

More info at <http://jet.mmu.edu.my/perfik2010/>

International Conference on Flavor Physics in the LHC Era

8 – 12 Nov 2010, NEC, NTU

Contact: Mr Miao, Email: flavorphy@ntu.edu.sg

Field Trip:

Weekend astronomy trip

13 – 15 Aug 2010, Punggai, Johor, Malaysia

Contact: Carole, Email: yenan@pacific.net.sg

