

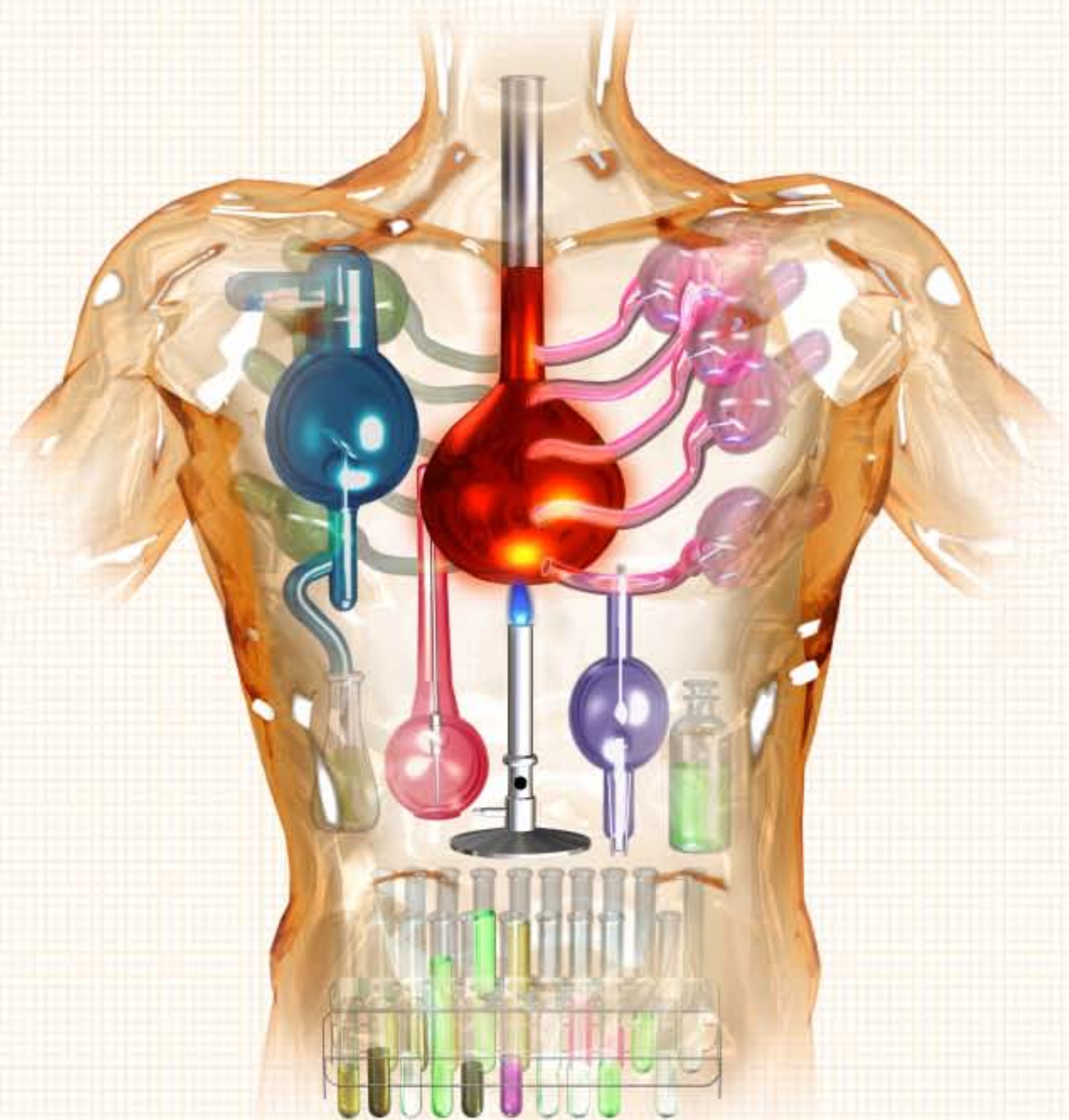
science.04

a month of Science, Technology and Biomedicine

1-30 SEPT

# LIVE SCIENCE!

Change the way you live.



science.04 is back with more excitement and innovative fun. With more than 120 activities, there will be something for everyone.

For more information on the events and other science.04 activities, please log on to [www.sciencemonth.org.sg](http://www.sciencemonth.org.sg)

Organised by:



Agency for  
Science, Technology  
and Research





TALK/SEMINAR



OPEN HOUSE



EXHIBITION



EDUTAINMENT



CARNIVAL

COMPETITION/  
AWARDS

WORKSHOP

SCIENCE  
SHOW

# HIGHLIGHTS

## Welcome to science.04

science.04, also known as Science Month, is an annual high profile national event to celebrate the dynamism of science, technology & biomedicine. With more than 120 activities this September, science.04 is amongst the largest and fastest growing science festival in the region. Held in venues throughout the island, the activities and events not only share the excitement of science with the public but also highlight the impact made by science and technology on our daily lives.

This year's theme of Live Science! serves to deliver the message that science encompasses all disciplines and that it should be experienced and not simply restricted to the textbook. So, come and discover science and change the way you live!

Details of the programmes are accurate at the time of print, but interested parties are advised to check with the relevant organisations for any changes.



### X-periment!

**3-5 SEPTEMBER**

**Time:** 1pm - 9pm  
(3 Sept) 11am - 9pm  
(4 & 5 Sept)

**Venue:** Suntec Entertainment Centre  
(outside Carrefour), Suntec City

**Target:** Public

**Organiser:** A\*STAR and Singapore Science Centre

**Pre-Registration:** No

**Fee:** No Charge

**E-mail:** upstream@science.edu.sg

X-periment!, a three-day science carnival celebrates the latest developments and research works in the field of science and technology. Visitors will be greeted with the latest innovations and experiments by local researchers. There will also be "sci-sational" hands-on experiments, quizzes and games. Come and be entertained by our "Cool! Musical Instrument" science shows and you will discover that science is truly "FUN-tastic".



### Images of Science - Digital Imaging Competition

**Target:** Public

**Organiser:** A\*STAR and Singapore Science Centre

**Pre-Registration:** ww.sciencemonth.org.sg  
(to download application form)

**Fee:** No Charge

**E-mail:** upstream@science.edu.sg

Images of Science returns to celebrate the dynamism of science, technology & biomedicine. This competition uncovers the artists in scientists and brings out the scientists in artists. This year, Images of Science shares the theme of science.04: Live Science! and challenges participants to share their vision on how science will change the way we live in the future. This competition accepts both individual and group entries and is open to participants of all ages. Winning images will be used for future science month.



### The Singapore Sci-Fi Festival

**24-26 SEPTEMBER**

**Time:** 3.30pm - 6.30pm  
(Sci-Fi Carnival)  
24 Sept: 7pm onwards  
25 & 26 Sept:  
7.30pm onwards  
(Sci-Fi Movie Screening)

**Venue:** Orchard Green  
(grass patch behind Orchard MRT)

**Target:** Public and Families

**Organiser:** A\*STAR and Singapore Science Centre

**Pre-Registration:** No

**Fee:** \$10 per night for movie screening.  
Tickets available at TicketCharge  
No fee for carnival

**E-mail:** upstream@science.edu.sg

It's back again! The Singapore Sci-Fi Festival calls all sci-fi movie buffs out there! Picnic under the stars and emerge yourself in an alternate reality. Dress up in a sci-fi theme, get spotted by our Space Commander and win prizes! Launch your mini rocket, zap some aliens, and catch our Spacey Science Show at the carnival. Explore the final frontiers where science is limited only by your imagination where the impossible can be made possible. Don't miss the fantastic line-up of outdoor screening from the best sci-fi movies; Matrix Trilogy, T3 and Spiderman 1. For the kids, there's Spy Kids 2 & a special edition of 3D version of Spy Kids 3! Not to worry, 3D glasses will be provided!



### National Junior Robotics Competition

**4-11 SEPTEMBER**

**Venue:** Annexe Building,  
Singapore Science Centre

**Target:** Upper Primary &  
Lower Secondary Students

**Organiser:** A\*STAR and Singapore Science Centre

**Pre-Registration:** No

**Fee:** No Charge

**E-mail:** njrc@science.edu.sg

Come and witness pure passion at play. NJRC is a major national robotics event. The competition challenges students from Upper Primary and Lower Secondary to assemble and programme the ultimate robot that can out-perform other robots in the

competition. This year's theme of Jocara Indian Ocean Expedition features a series of missions based on actual events of Dr John Potter's expedition in the Indian Ocean. The challenge will also be based on topics relating to the research conducted at the various stops in the expedition. This year's challenging theme will guarantee the 853 teams yet another fierce competition at the playing field!



### National Science & Technology Awards Dinner 2004

**15 SEPTEMBER**

**Venue:** Waterfront Copthorne

**Target:** Science & Technology Leaders from Industry & Research, Research Scientists and Engineers

**Organiser:** A\*STAR

**Pre-Registration:** By Invitation Only

**E-mail:** a-star\_contact@a-star.edu.sg

This prestigious annual event is the occasion where the National Science and Technology Awards (NSTA) will be presented to outstanding research scientists and engineers in recognition of their major contributions in basic research, applied R&D and to the development and management of R&D in Singapore.



### Kids Science Fest!

**15-21 SEPTEMBER**

**Time:** 10am - 6pm

**Venue:** Annexe Building,  
Singapore Science Centre

**Target:** Ages 6 & above and Families

**Organiser:** A\*STAR and Singapore Science Centre

**Pre-Registration:** No

**Fee:** No Charge

**E-mail:** upstream@science.edu.sg

Exciting science for all kids! More than 20 brilliant activities and exhibits for you to take part in to understand why people find science, experimentation and invention so fascinating! Blast into "Space", explore "Your Body", challenge yourself to "Mind Boggling Puzzles", put yourself in the shoes of a forensic scientist, an aspiring palaeontologist, or perhaps a determined engineer! Your science adventure starts here! Join us in the ultimate party with our "Party Science" shows performing daily with a lot of "oohs" and "wohs"!

# LIVE SCIENCE!



## Gene-Fest!

15-21 SEPTEMBER



**Time:** 10am - 6pm  
**Venue:** Annexe Building, Singapore Science Centre  
**Target:** Ages 6 & above and Families  
**Organiser:** A\*STAR and Singapore Science Centre  
**Pre-Registration:** No  
**Fee:** No Charge  
**E-mail:** upstream@science.edu.sg

Come on down and explore your genes with us! Challenge yourself in an attempt to build the bases of life in Towers of DNA and find out about gender and genetic disorders as you match the set of human chromosomes in The Great Chromosomes Wall. Our Incredible Protein Machine will show you how DNAs make proteins and Rings of Change is an exciting simulation game that shows the change in destiny of a bacterial cell! While you're here, do join us in the exciting science show, "The Basic Building Blocks of Life."

## Digi Science Trails

throughout SEPTEMBER

**Time:** 11am - 5pm  
**Venue:** Singapore Science Centre - Corridor of Science News  
**Target:** Public  
**Organiser:** A\*STAR and Singapore Science Centre  
**Pre-Registration:** No  
**Fee:** No Charge  
**Contact:** Brandon Lee  
**Email:** bsw\_lee@science.edu.sg

Quiz month is back at the Corridor of Science News! Look out for those giant plasma screens and challenge yourself to find the right answers to a pack of sizzling science quizzes, from perception, genes, space and more! Win great prizes while you explore the wonders of science! A series of interesting surveys on genetic traits are also available for your participation. The theme of the quiz changes every fortnight. Don't forget to ask for a contest form!

# SPECIAL EVENTS



## Early Mammalian Development and The Embryonic Stem Cell

2 SEPTEMBER

**Time:** 2.30pm - 3.30pm  
**Venue:** Maxwell Auditorium, Singapore Science Centre  
**Target:** Public, Upper Secondary & Tertiary students  
**Organiser:** GIS, A\*STAR & SSC  
**Fee:** No Charge  
**Pre-Registration:** Yes  
**Contact:** Jamilah  
**Tel:** 6425-2591  
**E-mail:** upstream@science.edu.sg  
**Fax:** 6561-6361

All mammals form from a single cell, the zygote, after fertilisation of an egg by a sperm. Needless to say a multitude of complex cellular differentiation events occur to generate an adult mammal from this single-celled zygote. This talk will focus on the molecular aspects of the very first cellular differentiation events that occur from the 1-cell to the 64-cell stage of development and the clinical relevance of this to the fields of embryonic stem therapies and assisted reproductive technologies. Speaker: Dr Paul Robson, Senior Research Scientist GIS, A\*STAR.



## Seminar on Photocatalytic Applications

6 SEPTEMBER

**Time:** 1pm - 6pm  
**Venue:** Auditorium, Level 3, SIMTech Tower Block, 71 Nanyang Drive  
**Target:** Tertiary Students, Professionals, Industry and Researchers  
**Organiser:** Singapore Institute of Manufacturing Technology (SIMTech)  
**Fee:** No Charge  
**Pre-Registration:** Yes  
**Contact:** Samantha Chan  
**Tel:** 6793-8423  
**E-mail:** samantha@SIMTech.a-star.edu.sg  
**Fax:** 6791-6377

The seminar will focus on an environmentally-friendly technology which uses sunlight on Photocatalytically Reactive Titanium Dioxide coatings (PRTiO<sub>2</sub>) to create self-cleaning and self-sterilising surfaces for products such as tiles, glass, walls, air conditioners and possibly cars in future. Topics covered include: Environmental applications of photocatalytic reactions, design and synthesis of semiconductor nanostructures for photocatalytic applications, solar driven TiO<sub>2</sub> self-cleaning coating for building surfaces & Taylor Vortex Photocatalytic Reactor for Water Purification.



## 9th IEEE International Conference on Communication Systems (ICCS 2004)

6-8 SEPTEMBER

**Time:** 8am - 5pm  
**Venue:** Shangri-La Rasa Sentosa Resort  
**Target:** Professionals  
**Organiser:** Institute for Infocomm Research (I<sup>2</sup>R), Singapore  
**Fee:** S\$800  
**Pre-Registration:** Yes  
**Contact:** How Xuan Xuan  
**Tel:** 6466-5775 Ext 222  
**E-mail:** hxx@meetmatt.net  
**Fax:** 6467-7667

This is a biennial series of conferences co-organised by the IEEE Singapore Section Communications Chapter, the National University of Singapore (NUS) and the Institute for Infocomm Research (I<sup>2</sup>R), Singapore.



## Design Competition - Storage Unlimited in Consumer Electronics

7-8 SEPTEMBER

**Time:** 10am - 5pm  
**Venue:** Function Room, Nanyang Technological University  
**Target:** Public, Upper Secondary, JC & Tertiary Students  
**Organiser:** (NTU) DSI, A\*STAR & NTU. Sponsored by Seagate Technology International  
**Fee:** No Charge  
**Pre-Registration:** No  
**E-mail:** graduate@dsi.a-star.edu.sg

The design competition is organised to unleash the creativity of students in NTU in the area of storage device and applications for consumer electronics. Winners will be announced at the Award Ceremony on 9 September 2004. Top winners will be presenting their designs on this special day.



## Graduate Student Symposium 2004 - A Chemical Engineering Showcase: Convergence 2004

10 SEPTEMBER

**Time:** 9am - 5pm  
**Venue:** NUS Engineering Auditorium, Faculty of Engineering, EA Block, Ground Level  
**Target:** Tertiary Students, Professionals and Public  
**Organiser:** National University of Singapore (NUS)  
**Fee:** No Charge  
**Pre-Registration:** Yes  
**Contact:** Arul Sundaramoorthy  
**E-mail:** g0202101@nus.edu.sg

Get a panoramic view of the current research activities at the Chemical & Biomolecular Engineering (ChBE) Department while interacting with faculty members and graduate students of the department. In addition, create research opportunities and collaborations while identifying the talents that may suit organisations attending the symposium.



## 2nd International Conference on Smart Homes & Health Telematics

15-17 SEPTEMBER

**Time:** 8am - 5pm  
**Venue:** Shangri-La Rasa Sentosa Resort  
**Target:** Professionals  
**Organiser:** Institute for Infocomm Research (I<sup>2</sup>R)  
**Fee:** S\$1,000  
**Pre-Registration:** Yes  
**Contact:** Zhang Daqing  
**Tel:** 6874-7860  
**E-mail:** icost2004@i2r.a-star.edu.sg  
**Fax:** 6775-5014

This conference will present the latest approaches and technical solutions in the areas of smart home, health telematics, and enabling technologies such as middleware, networks, and novel applications and services.



TALK/SEMINAR



OPEN HOUSE



EXHIBITION



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# CALENDAR OF EVENTS

## IMRE Industry Symposium

**24 SEPTEMBER**

Time: 9am - 2pm  
 Venue: Seminar Room 1, Institute of Materials Research and Engineering, 3 Research Link  
 Target: Professionals & Industry  
 Organiser: Institute of Materials Research & Engineering (IMRE, A\*STAR)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Eugene Low  
 Tel: 6874-8491  
 E-mail: eugene-low@imre.a-star.edu.sg  
 Fax: 6872-0785

The IMRE Industry Symposium is an annual event targeted at industries in Singapore. The event showcases some of IMRE's industry-related research projects and achievements as well as seeks to foster greater interaction between IMRE and industry.

## No More Pain!

**25 SEPTEMBER**

Time: 2pm - 2.45pm  
 Venue: Singapore Science Centre  
 Target: Public, Secondary School & JC Students  
 Organiser: Institute of Materials Research & Engineering (IMRE, A\*STAR) & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: upstream@science.edu.sg  
 Fax: 6561-6361

Afraid of doctors armed with needles? Not anymore!! With the advancement of science and technology, painless injections into the body will soon be real. Want to find out more about how it works? Mr Lim Chee Yen, Research Officer from the Institute of Materials Research & Engineering (IMRE, A\*STAR) will be sharing with us some of the latest research work being carried out in the Micro & NanoSystem cluster.

## "Crystals, Crystals, Tell Me More!"

**25 SEPTEMBER**

Time: 3pm - 3.45pm  
 Venue: Singapore Science Centre  
 Target: Public, Secondary & JC Students  
 Organiser: Data Storage Institute (DSI, A\*STAR) & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: upstream@science.edu.sg  
 Fax: 6561-6361

The presentation will introduce the crystals in nature, the beauty of crystals, functions and uses of synthetic crystals, etc. A simple method to grow your own crystals in the Sun will be introduced to the audience. Some crystal samples will be exhibited and the observation of optical crystal properties as well as the holographic recording of pictures in the crystal with laser beams will be demonstrated after the presentation. Presenter: Dr Xu Xuewu, Research Scientist from Data Storage Institute, A\*STAR. Dr Xu is an expert with more than 15 years' R&D experience in the field of crystal growth and characterisation. He has accumulated abundant experience and skills in the areas of various functional crystal growth techniques and holographic data storage. Recently, his major research focus is on the development of rewritable holographic recording media and two-colour nonvolatile holographic storage technology.

## ICBN 2004 - International SBE Conference on Bioengineering and Nanotechnology

**26-29 SEPTEMBER**

Venue: Biopolis@one-north, 30 Biopolis Street  
 Target: Professionals and Industry  
 Organiser: Institute of Bioengineering and Nanotechnology, American Institute of Chemical Engineers and Society for Biological Engineering  
 Fee: USD\$600  
 Pre-Registration: Yes  
 Contact: ICBN 2004 Conference Secretariat  
 Tel: 6824-7000  
 E-mail: ICBN@icbn2004.com  
 Fax: 6478-9085

This conference will bring together leading researchers working at the interface of bioengineering and nanotechnology to present the latest advancements and explore the enormous potential presented at the cross-disciplinary frontiers of engineering, science and medicine. The conference will be chaired by Prof. Jackie Y. Ying, Executive Director, IBN, A\*STAR. For more information, kindly log on to [www.icbn2004.com](http://www.icbn2004.com)

## Science In STORE

### Science In STORE @ Times The Bookstore

**5 SEPTEMBER**

Time: 4pm - 5pm  
 Venue: Times The Bookshop, Centrepoint  
 Target: Ages 6 - 12  
 Organiser: A\*STAR & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: noorjamilah@science.edu.sg  
 Fax: 6561-6361

Our Solar System consists of the Sun, nine planets and their moons, an asteroid belt, and many comets and meteors. In this workshop, we will make a model of our Solar System while we explore space! Limited seats are available. Application is on a "first-come-first-served" basis.

### Science In STORE @ Borders

**6 SEPTEMBER**

Time: 3pm - 4pm  
 Venue: Borders @ #01-00 Wheelock Place  
 Target: Ages 6 - 12  
 Organiser: A\*STAR & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: noorjamilah@science.edu.sg  
 Fax: 6561-6361

How well do you know your bones? And what functions do they perform? How are bones connected in our body? To find out more, join us in "Fixing Mr Bones" while you assemble a human skeletal model. Application is on a "first-come-first served" basis.

### Science In STORE @ Borders

**8 SEPTEMBER**

Time: 3pm - 4pm  
 Venue: Borders @ #01-00 Wheelock Place  
 Target: Ages 6 - 12  
 Organiser: A\*STAR & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: noorjamilah@science.edu.sg  
 Fax: 6561-6361

Come and experience a hair raising moment. See your hair raised up like an angry porcupine through static electricity. It is fun and we will teach you a trick or two! Limited seats are available. Application is on a "first-come-first-served" basis.

### Science In STORE @ Kinokuniya

**11 SEPTEMBER**

Time: 3pm - 4pm  
 Venue: Kinokuniya @ Ngee Ann City Tower B  
 Target: Ages 6 - 12  
 Organiser: A\*STAR & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: noorjamilah@science.edu.sg  
 Fax: 6561-6361

What's in your brain? Join us and you'll find out more about the wonder of how the brain functions while making a model of the human brain. Limited seats are available. Application is on a "first-come-first-served" basis.

### Science In STORE @ Popular

**12 SEPTEMBER**

Time: 6pm - 7pm  
 Venue: Popular @ Toa Payoh  
 Target: Ages 6 - 12  
 Organiser: A\*STAR & Singapore Science Centre  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Jamilah  
 Tel: 6425-2591  
 E-mail: noorjamilah@science.edu.sg  
 Fax: 6561-6361

Our Solar System consists of the Sun, nine planets and their moons, an asteroid belt, and many comets and meteors. In this workshop, we will make a model of our Solar System while we explore space! Limited seats are available. Application is on a "first-come-first-served" basis.

# LIVE SCIENCE!

## Science In STORE @ Kinokuniya

18 SEPTEMBER

Time: 3pm - 4pm  
Venue: Kinokuniya @ Ngee Ann City Tower B  
Target: Ages 6 - 12  
Organiser: A\*STAR & Singapore Science Centre  
Fee: No Charge  
Pre-Registration: Yes  
Contact: Jamilah  
Fax: 6425-2591  
E-mail: noorjamilah@science.edu.sg  
Fax: 6561-6361

The human body is made up of trillions of cells. Cells of the nervous system called neurons, carry "messages" through an electrochemical process. The human brain has about 100 billion neurons which come in many different shapes and sizes ranging from only 4 microns to about 100 microns wide. (1 micron is equal to one thousandth of a millimetre!). In this session, participants will get to make a model of a neuron and learn how they carry messages. Limited seats are available. Application is on a "first-come-first-served" basis.

## Science In STORE @ Popular

19 SEPTEMBER

Time: 3pm - 4pm  
Venue: Popular @ Marine Parade  
Target: Ages 6 - 12  
Organiser: A\*STAR & Singapore Science Centre  
Fee: No Charge  
Pre-Registration: Yes  
Contact: Jamilah  
Tel: 6425-2591  
E-mail: noorjamilah@science.edu.sg  
Fax: 6561-6361

The human body is made up of trillions of cells. Cells of the nervous system called neurons, carry "messages" through an electrochemical process. The human brain has about 100 billion neurons which come in many different shapes and sizes ranging from only 4 microns to about 100 microns wide. (1 micron is equal to one thousandth of a millimetre!). In this session, participants will get to make a model of a neuron and learn how they carry messages. Limited seats are available. Application is on a "first-come-first-served" basis.

## SCIENCE SHOW

### COOL! MUSICAL INSTRUMENTS!

3-5 SEPTEMBER

Time: 4pm & 7.30pm (3 Sept)  
12.30pm, 4pm & 7.30pm (4 & 5 Sept)  
Venue: X-periment!, Suntec City Entertainment Centre (Outside Carrefour)  
Target: Public  
Organiser: A\*STAR & Singapore Science Centre  
Fee: No Charge  
E-mail: upstream@science.edu.sg

Find out how vibrations make sound, how fast they have to go to hear everything and be part of giant sound wave. See sound energy bring water to life. Explore the different parts of musical instrument - something that vibrates, something to change the frequency of vibrations and something to amplify the sound. Then play some unusual instruments including the coat hanger, the cup, the bucket, straws and garden hose.

### PARTY SCIENCE

15-21 SEPTEMBER

Time: 11am, 12.30pm, 2.30pm & 5pm Daily  
Venue: Kids Science Fest!, Annexe Building, Singapore Science Centre  
Target: Public  
Organiser: A\*STAR & Singapore Science Centre  
Fee: No Charge  
E-mail: upstream@science.edu.sg

Make balloon animals and kebabs, discover some unusual paper chains and find out why it hurts to stand on that drawing pin you just dropped. But why doesn't it hurt to sit on 800 nails? Find out why you're allowed to play with your food (and your drinks!). No party is complete without music. Play your party favourites on some unusual instruments and find a use for those empty wine bottles. You're never too old to have candles for your birthday party - be amazed as we reveal how to blow out your candles from 5 metres away. Of course every party needs to go with a bang - there is sure to be one in Party Science.



### BASIC BUILDING BLOCKS OF LIFE

15-21 SEPTEMBER

Venue: Gene-Fest!, Annexe Building, Singapore Science Centre  
Target: Public  
Organiser: A\*STAR & Singapore Science Centre  
Fee: No Charge  
E-mail: upstream@science.edu.sg

Cells are the basic building blocks of life. Audiences will get to assume the form of molecules that are allowed inside cells - oxygen, salts, proteins, sugars, complex carbohydrates, lipids or more toxic chemicals while taking on this journey into the wilderness of the cells with Nick and Rich. Have fun while you discover how energy is produced from breakdown of carbohydrate molecule into simple sugars and more!

### SCIENCE IS FUN!

18 SEPTEMBER

Time: 3pm  
Venue: Maxwell Auditorium, Singapore Science Centre  
Target: Public  
Organiser: A\*STAR & Singapore Science Centre  
Fee: No Charge  
Pre-Registration: Yes  
Contact: Kelly/Halijah  
Tel: 6425-2525/6  
Fax: 6561-6361

The master of chemical demonstrations, University of Wisconsin-Madison Professor Bassam Z. Shakhashiri, shares the fun of science-oriented "magic" activities and experiments in his famous Science is Fun show. By demonstrating how fun chemistry can be, Dr. Shakhashiri seeks to impart the joy of discovery that has aroused young minds throughout history.

## EVENTS

### A Crash Course on MobileVB for SmartPhone Application Development

4 SEPTEMBER

Time: 9am - 1pm  
Venue: Nanyang Polytechnic 180 Ang Mo Kio Ave 8, Block N, Rm N.502  
Target: Public, Tertiary Students and Professionals  
Organiser: Nanyang Polytechnic (NYP)  
Fee: No Charge  
Pre-Registration: Yes  
Contact: Edmund Teo  
Tel: 6550-0874  
E-mail: Edmund\_Teo@nyp.gov.sg  
Fax: 6454-4712

This half-day workshop will provide participants with an appreciation of developing applications on SmartPhone, using MobileVB. It will cover: Intro to SmartPhones and MobileVB, Setting up MobileVB's IDE, Developing multimedia applications using basic MobileVB Ingots & Developing Internet-enabled applications using MobileVB HTTP Ingots.

### Faculty of Science Open House

4 SEPTEMBER

Time: 2pm - 6pm  
Venue: Faculty of Science Open House  
Target: Public  
Organiser: National University of Singapore (NUS)  
Fee: No Charge  
Pre-Registration: No  
Contact: Chantel Goh  
Tel: 6874-6890  
E-mail: chantelgoh@nus.edu.sg  
Fax: 6777-0607

Come and visit the Faculty of Science Open House for a hands-on experience with your friends and family! More details can be found at <http://www.science.nus.edu.sg>



TALK/SEMINAR



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# CALENDAR OF EVENTS



## Basic Biosafety Training Course For Employees

**6-8 SEPTEMBER**

Time: 8.30am - 5.30pm  
 Venue: School of Chemical & Life Sciences, Block 1, T121  
 Target: Public, Professionals, Life Science & Biomedical Industry  
 Organiser: Singapore Polytechnic (SP)  
 Fee: \$147  
 Pre-Registration: Yes  
 Contact: Poh Chip Thean  
 Tel: 6870-6134  
 E-mail: pohchipthean@sp.edu.sg  
 Fax: 6772-1957

In the field of biotechnology and biomedical science, scientists and researchers have to carry out safe practices when dealing with microorganisms. The scientific objectives of research can still be achieved even when dealing with dangerous or exotic organisms that can cause laboratory-acquired infections. This course will lay the foundation for basic biosafety in life science and biomedical laboratories. Topics will include the roles of the biosafety officer, employee and management, decontamination, risk assessment, Risk Groups, BSL1-4, Biological Safety Cabinets, safe use of centrifuges, waste disposal etc. Participants will have to sit for an examination, 2 days after the course. Successful candidates will be awarded a Certificate of Performance. Note: Interested participants sign up for ONE of the 3 days (6, 7 or 8 Sept). For more details, see <http://www.sp.edu.sg/department/dis/-cec.htm>



## Biosciences Techniques and Applications

**6-7 SEPTEMBER**

Time: 9am - 12nn  
 Venue: School of Chemical & Life Sciences, Workshops W211A and W211B  
 Target: Public, Professionals, Life Science & Biomedical Industry  
 Organiser: Singapore Polytechnic (SP)  
 Fee: \$120  
 Pre-Registration: Yes  
 Contact: Poh Chip Thean  
 Tel: 6870-6134  
 E-mail: pohchipthean@sp.edu.sg  
 Fax: 6772-1957

This workshop consists of 2 half-days. Participants will learn different methodologies of DNA fingerprinting techniques. They will play "DNA detectives" to match the crime scene DNA fingerprinting pattern with the suspect's. They will also isolate their own DNA sample and perform gene amplification. The amplified DNA will be analysed for the allelic frequency. Data collected from the whole class will be discussed. More details: <http://www.sp.edu.sg/department/dis/-cec.htm>



## Flying Glider Competition

**6-11 SEPTEMBER**

Time: 9am - 5pm  
 Venue: Singapore Polytechnic, Multi-purpose Field  
 Target: Primary & Secondary Students, Open to Public for Viewing  
 Organiser: Singapore Polytechnic (SP)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Ratnam Ganesh  
 Tel: 6772-1553  
 E-mail: rganesh@sp.edu.sg  
 Fax: 6772-1975

Soar to greater heights! Come join the RAMP LAUNCHED GLIDER COMPETITION at Singapore Polytechnic. SP's first-ever Ramp-Launched Glider Competition promises to relive the memories of the Wright brothers' momentous first flight. The most flight-capable gliders stand to win attractive prizes. The most creative and innovative gliders will also be in the running for special awards. For more updated information, visit: <http://www.sp.edu.sg/schools/mm/soar.htm>



## Machines Smaller Than The Size of A Pollen Grain

**7 SEPTEMBER**

Time: 12.30pm - 2pm  
 Venue: Republic Polytechnic, Library  
 Target: Public, Secondary & Tertiary Students and Professionals  
 Organiser: Republic Polytechnic (RP)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Cindy Chua  
 Tel: 6319-3430  
 E-mail: cindy\_chua@rp.edu.sg  
 Fax: 6415-1310

How can machines smaller than the size of a pollen grain be fabricated? What are the functions of such tiny machines? The talk will cover what micromachines are, their applications and the way they are designed and fabricated on a silicon chip using special fabrication techniques.



## Asian Noodles: Making Egg Noodles

**7 SEPTEMBER**

Time: 10am - 12.30pm  
 Venue: SP Asian Noodle Technology Development Centre, Workshop W10  
 Target: Public - Adults only  
 Organiser: Singapore Polytechnic (SP)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Toh Hui Kheng  
 Tel: 6870-6149  
 E-mail: Toh\_hui\_kheng@sp.edu.sg  
 Fax: 6772-1976

Participants will be briefed on the different types of Asian noodles. They will be given useful tips on how to assess good quality

egg (wonton) noodles. They will also be taught to make good quality noodles and have a hands-on experience in making egg (wonton) noodles.



## Audio Technologies - Past, Present and Future

**8 SEPTEMBER**

Time: 12.30pm - 2pm  
 Venue: Republic Polytechnic, Library  
 Target: Public, Secondary & Tertiary Students, Professionals  
 Organiser: Republic Polytechnic (RP)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Cindy Chua  
 Tel: 6319-3430  
 E-mail: cindy\_chua@rp.edu.sg  
 Fax: 6415-1310

Is full digital amplification the way forward to eliminate analog noise? Confused by various multi-channel formats, 5.1 or 6.1? Is vacuum tube amplification the thing of the past? This talk will present a brief history of audio design, introduce the latest trend of audio technologies and provide a glimpse into the future of audio engineering.



## The Human Cardiovascular System

**9-10 SEPTEMBER**

Time: 9am - 12nn & 2pm - 5pm  
 Venue: Biomedical Engineering Technology Centre, Blk 8, Level 3, Rooms 3 & 4 (#08-03-03, #08-03-04)  
 Target: Public and Secondary School Students  
 Organiser: Ngee Ann Polytechnic (NP)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Dennis Tam/Tim Foo/Tan Bee Kim  
 Tel: 6460-6193/6460-6143/6460-8417

Want to find out how your heart works and how to measure heart signals? Come and find out for yourself in this hands-on session where you get to play "doctor". You will get to find out: (1) How healthy your heart is (2) The electrical activity of the heart and the Electrocardiogram (3) Blood Pressure, Sphygmomanometers & Oscillometric Meters (4) Heart Sound and the Stethoscope (5) Common Cardiovascular Ailments (6) Introduction to Cardiovascular Equipment and Understand How It Works.



## Will Our Life be The Same with The Coming of Electronic Product Code (EPC) and Radio Frequency Identification (RFID) Tags?

**10 SEPTEMBER**

Time: 12.30pm - 2pm  
 Venue: Republic Polytechnic, Library  
 Target: Public, Secondary & Tertiary Students and Professionals  
 Organiser: Republic Polytechnic (RP)  
 Fee: No Charge  
 Pre-Registration: Yes  
 Contact: Cindy Chua  
 Tel: 6319-3430  
 E-mail: cindy\_chua@rp.edu.sg  
 Fax: 6415-1310

The Electronic Product Code (EPC) is a unique number that identifies a specific item or a product. The EPC is stored in a radio frequency identification (RFID) tag, which consists of a silicon chip and an antenna. Once the EPC is retrieved from the RFID tag, it can be associated with dynamic data such as where the item originated or the date of its production. Just imagine what will happen when all the items around you are tagged with such kinds of RFID devices.



## Creating Visual Effects in Video and Film Using Combustion

**11 SEPTEMBER**

Time: 9.30am - 12.30pm  
 Venue: School of Info-Communications Technology, Block 20, T2055  
 Target: Public, Secondary & Tertiary Students and Professionals  
 Venue: Singapore Polytechnic (SP)  
 Fee: \$20  
 Pre-Registration: Yes  
 Contact: Zaleha  
 Tel: 6772-1941  
 E-mail: Zaleha@sp.edu.sg  
 Fax: 6779-7912

Films constructed using special effects fascinate and amaze audiences. Often, audiences leave the theatre asking, "How did they do that?" This workshop hopes to show participants the basic knowledge on how visual effects are created using high end visual effects compositing software - Combustion to bring special effects into videos and films. Participants will experience compositing various footages to create a visual effects sequence.

# LIVE SCIENCE!

## Creating a Mobile Presence – An Overview

11 SEPTEMBER

Time: 9am – 12nn  
Organiser: Nanyang Polytechnic, 180 Ang Mo Kio Ave 8, Block N, Rm N.502  
Target: Public and Professionals  
Organiser: Nanyang Polytechnic (NYP)  
Fee: No Charge  
Pre-Registration: Yes  
Contact: Anthony Szeto  
Tel: 6550-0823  
E-mail: Anthony\_Szeto@nyp.gov.sg  
Fax: 6454-4712

This half-day workshop will provide participants with an overview of creating a Web site for mobile access. It will cover the following: – XHTML and its role in wireless development. – Creating documents for wireless clients. – Setting up the infrastructure.

## Easy Medical Imaging

11 SEPTEMBER

Time: 9am – 12nn  
Venue: Nanyang Polytechnic Blk S Level 5, Rm 565  
Target: Public  
Organiser: Nanyang Polytechnic (NYP)  
Fee: No Charge  
Pre-Registration: Yes  
Contact: Ong Lay Choo  
Tel: 6550-0658  
E-mail: ong\_lay\_choo@nyp.gov.sg  
Fax: 6454-9871

Explore what's inside medical images. Learn how to create 3D images out of it and use it for visualisation and design of medical implants.



## 3D Modeling Using Rhino

11 SEPTEMBER

Time: 9am – 12nn  
Venue: School of Design & the Environment, Block 3, T304  
Target: Public  
Organiser: Singapore Polytechnic (SP)  
Fee: \$10  
Pre-Registration: Yes  
Contact: Chen Yoon Han  
Tel: 6870-6163  
E-mail: chenyan@sp.edu.sg  
Fax: 6772-1973

Rhino is a powerful 3D modelling package and it is widely used as a design tool in various industries. This workshop is for beginners. Participants will learn the basic concepts of 3D modelling and the application of using Rhino in modelling a complex design part.

## How to Print Digital Photographs on Home Inkjet Printers

11 SEPTEMBER

Time: 9am – 11am  
Venue: School of Design and the Environment, Workshop W5A  
Target: Public  
Organiser: Singapore Polytechnic (SP)  
Fee: \$5  
Pre-Registration: Yes  
Contact: Lau Chin Ming  
Tel: 6879-0453  
E-mail: laucm@sp.edu.sg  
Fax: 6772-1973

Digital photography is now quite popular and many users would have tried to print their photographs on their home deskjet. Quite often, the results may be less than expected. This workshop is for beginners. Participants will give a gentle and hands-on introduction to the technical issues behind colour reproduction. Participants are encouraged to bring one or two soft copies of photographs and will be guided on how to produce prints of the desired size and colour. The participation fee of \$5 is meant for photopaper and ink to be used in the workshop.

## Music Downloading: Are You on the Wrong Side of the Law?

11 SEPTEMBER

Time: 9.30am – 12nn  
Venue: School of Info-Communications Technology, Block 20, T2041  
Target: Public  
Organiser: Singapore Polytechnic (SP)  
Fee: \$10  
Pre-Registration: Yes  
Contact: Zaleha  
Tel: 6772-1941  
E-mail: Zaleha@sp.edu.sg  
Fax: 6779-7912

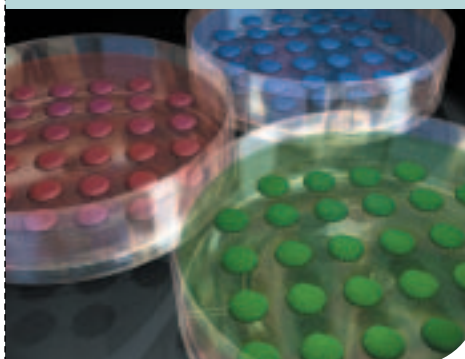
The seminar covers basic principles of law and the Singapore Legal System, with particular emphasis on copyright law in the music industry. Some internet websites allow for peer to peer music sharing and downloading. This is an interactive seminar and participants are encouraged to share their views on copyright and the music industry in general.

## The Power of Data Mining

11 SEPTEMBER

Time: 9.30am – 12.30pm  
Venue: School of Info-Communications Technology, Block 20, T2023  
Target: Public  
Organiser: Singapore Polytechnic (SP)  
Fee: \$20  
Pre-Registration: Yes  
Contact: Zaleha  
Tel: 6772-1941  
E-mail: Zaleha@sp.edu.sg  
Fax: 6779-7912

Ever wonder what is data mining all about? It is the process of exploring and analysing large volume of data in order to discover interesting and hidden patterns in data. Participants will have a hands-on session using a popular data mining tool – SAS Enterprise Miner.



## Flash Animation on the Web

11 SEPTEMBER

Time: 9.30am – 12.30pm  
Venue: School of Info-Communications Technology, Block 20, T2031  
Target: Public, Primary & Secondary School Students  
Organiser: Singapore Polytechnic (SP)  
Fee: \$20  
Pre-Registration: Yes  
Contact: Zaleha  
Tel: 6772-1941  
E-mail: Zaleha@sp.edu.sg  
Fax: 6779-7912

Flash is currently used on the Web for animation and games. This workshop will introduce the interface of the Flash authoring environment. Participants will be able to have hands-on session on how to draw simple shapes and objects in Flash, do a simple motion tweening to effect an animation and publish a Flash animation onto a web page.

## The Future of the Marine and Offshore Industry

11 SEPTEMBER

Time: 9.30am – 12.30pm  
Venue: NUS Engineering Auditorium, Faculty of Engineering, EA Block, Ground Level  
Target: Polytechnics & Tertiary Students, Professionals and Public  
Organiser: National University of Singapore (NUS)  
Fee: No Charge  
Contact Name: Julie Liao  
Pre-Registration: Yes  
Tel: 6874-4436  
E-mail: engliauj@nus.edu.sg  
Fax: 6779-5594

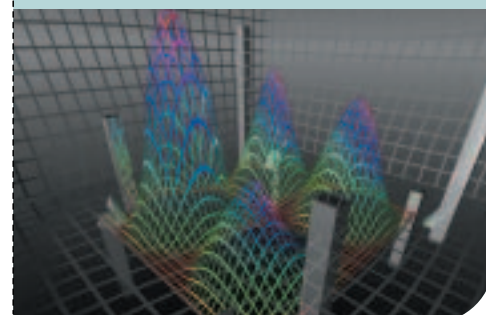
A Keppel Corporation seminar with exhibition of the latest marine and offshore engineering activities and up-scale models of jack-up rigs and ships to show how the industry has undergone a face-lift and revival with more career opportunities open to the young. There will be talks on present and future marine and offshore engineering activities and how Keppel has managed to corner at least 70 per cent of the world's market in jack-up rigs. Safety enhancement in shipyards and welfare undertaken by Keppel and the industry will be explained by engineering and HR chiefs while being supported by a unique and well recognised curriculum of the NUS Civil Engineering Department.

## Singapore Statistical Poster Competition Exhibition

14–20 SEPTEMBER

Time: 10am – 5pm  
Venue: Annexe Lobby, Singapore Science Centre  
Target: Public, Secondary & Tertiary Students  
Organiser: Dept. of Statistics & Applied Probability, NUS, A\*STAR, SSC. Sponsored by SAS Institute Inc.  
Fee: No Charge  
Pre-Registration: No  
Tel: 6425-2591  
E-mail: upstream@science.edu.sg

An exhibition of the winning entries of the competition. The Singapore Statistical Poster Competition aims to increase the awareness of statistics and its relevance to scientific research, and to encourage the development of statistical reasoning in students. The competition encourages students to explore creative ways of explaining and displaying data, to practice problem-solving techniques with real world data, and to illustrate conclusions that can be drawn from the data.





TALK/SEMINAR



OPEN HOUSE



EXHIBITION



EDUTAINMENT



CARNIVAL

COMPETITION/  
AWARDS

WORKSHOP

SCIENCE  
SHOW

# CALENDAR OF EVENTS



## Eureka01

17 SEPTEMBER

**Time:** 8.30am - 5pm  
**Venue:** The Matrix Auditorium, Biopolis@one-north, 30 Biopolis Street,  
**Target:** Public, Secondary & Tertiary Students and Professionals  
**Organiser:** Republic Polytechnic (RP)  
**Fee:** \$10  
**Pre-Registration:** Yes  
**Contact:** Tan Jian Chye Sam  
**Tel:** 9100-2643  
**E-mail:** lionheartsam@myrp.edu.sg

A science symposium with the theme "Biomedical Science, The Next 10 Years", comprising speakers from the Biomedical Science industry provides insights into current trends and developments in the industry. Registration fees (inclusive of refreshment): Before 1st Sept 2004, \$8 Public, \$5 Students. From 1st Sept 2004, \$10 Public, \$6 students. Please enquire for bulk registration discount. Visit <http://myrp2.myrp.edu.sg/sites/cca/sasc/scisym/> for more information.



## The Ups and Downs of An Engineering Technopreneur

18 SEPTEMBER

**Time:** 9.30am - 12.30pm  
**Venue:** NUS Engineering Auditorium, Faculty of Engineering, EA Block, Ground Level  
**Target:** Public, Tertiary Students and Professionals  
**Organiser:** National University of Singapore (NUS)  
**Fee:** No Charge  
**Pre-Registration:** Yes  
**Contact:** Julie Liao  
**Tel:** 6874-4436  
**E-mail:** engliauj@nus.edu.sg  
**Fax:** 6779-5594

Too often the best research projects are sidelined into a corner because of a lack of good and sound business plan to market products. Tomorrow's engineers who are to be "thinkers, investors and entrepreneurs" must combine the best business elements into their research so as to have relevant industry applications and a ready market for their inventions. The engineer must also be business trained. Hence, a technopreneur!



## High Performance Computing & Drug Discovery

18 SEPTEMBER

**Time:** 9.30am - 12.30pm  
**Venue:** School of Info-Communications Technology, MLT11  
**Target:** Public, Tertiary Students and Professionals  
**Organiser:** Singapore Polytechnic (SP)  
**Fee:** \$10  
**Pre-Registration:** Yes  
**Contact:** Zaleha

**Tel:** 6772-1941  
**E-mail:** Zaleha@sp.edu.sg  
**Fax:** 6779-7912

As Beowulf cluster was put forward as an alternative to super computers, the expectation of a cluster built from mass-market commonality (off the shelf CPUs) could collectively out-perform processors of higher classes, in some cases, may seem misplaced. An overview of the architecture of Beowulf cluster will be given. In the works undertaken at Singapore Polytechnic to identify small chemical as drug leads against dengue virus, more than two million plus chemicals are passed through the Virtual High Throughput Screening (VHTS), to identify the possible drug leads against the virus. An overview of drug discovery will be given.



## Fungal Biology Workshop

23-25 SEPTEMBER

**Time:** 9am - 5pm  
**Venue:** School of Chemical & Life Sciences, Nanyang Polytechnic, 180 Ang Mo Kio Ave 8, Block Q, Room Q709  
**Target:** Public  
**Organiser:** Nanyang Polytechnic (NYP)  
**Fee:** \$250  
**Pre-Registration:** Yes  
**Contact:** Tan Wee Poh  
**Tel:** 6550-1512  
**E-mail:** tan\_wee\_poh@nyp.gov.sg  
**Fax:** 655-20844

To appreciate the biodiversity of the fungi and the importance of fungi to the humans. Participants will learn: - Microscopic examination of fungi morphology - Classification of fungi - Cultivation of edible fungi - Field trip to nature reserve to observe natural occurring fungi in Singapore.



## Having Fun with Nanotechnology

25 SEPTEMBER

**Time:** 9.30am - 12.30pm  
**Venue:** NUS Engineering Auditorium, Faculty of Engineering, EA Block, Ground Level  
**Target:** Public, Secondary & Tertiary Students and Professionals  
**Organiser:** National University of Singapore (NUS)  
**Fee:** No Charge  
**Pre-Registration:** Yes  
**Contact:** Julie Liao  
**Tel:** 6874 4436  
**E-mail:** engliauj@nus.edu.sg  
**Fax:** 6779-5594

How do we make nanostructures in a quick and easy manner? The recipe to success includes a combination of gravity, surface tension and capillary forces. This talk will highlight several aspects of nanosphere lithography in relation to making arrays of nanostructures and devices as well as their potential applications.



## A Challenge of Your Sports Skills

24-25 SEPTEMBER

**Time:** 9am - 5pm  
**Venue:** HEALTHZONE, Health Promotion Board, No.2 Second Hospital Avenue  
**Target:** Public  
**Fee:** \$3  
**Pre-Registration:** No  
**Contact:** Ramlah/Zaiton  
**Tel:** 6435-3615  
**E-mail:** hpb\_health\_zone@hpb.gov.sg  
**Fax:** 6538-7725

Consisting of a variety of sports stations, participants (school going children between ages 7 and 18 years old, and adults between ages 19 and 59 years old) will get the chance to pit their sporting skills against other contestants. What's more...try and break the best record of the day and win attractive prizes. (Children below 7 years of age and senior citizens 60 years and above will be invited to participate in a non-competitive fun games fair which will be held at a separate area.) \*Usual HealthZone admission charges of \$3.00 per adult and \$1.50 per child apply. Special groups rates are available for group participation. Pre-registration is required for group participation.



## Cleanroom Seminar 2004

25 SEPTEMBER

**Time:** 9am - 1pm  
**Venue:** Novotel Apollo Singapore Venus 1, Level 3  
**Target:** Public, Professionals and Secondary 3, 4 & Tertiary Students  
**Organiser:** Singapore Polytechnic (SP)  
**Fee:** Adult - \$100 (Seminar & Lunch)  
 Student - \$5 (Seminar) \$80 (Seminar & Lunch)  
**Pre-Registration:** Yes  
**Contact:** Loh Sin Foo  
**Tel:** 6772-1741  
**E-mail:** ohsf@sp.edu.sg  
**Fax:** 6772-1975

Seminar is jointly organised by Singapore Polytechnic and ASHRAE Singapore Chapter. Topics covered are: a) Construction of semiconductor and pharmaceutical cleanroom b) Flat panel display c) Laser particle counter d) Air Filtration

science.04 is organised by A\*STAR and Singapore Science Centre, in partnership with:

BII  
Bioinformatics Institute

BTI  
Bioprocessing Technology Institute

DSI  
Data Storage Institute

EDB  
Economic Development Board

GIS  
Genome Institute of Singapore

HPB  
Health Promotion Board

I<sup>2</sup>R  
Institute for Infocomm Research

IBN  
Institute of Bioengineering & Nanotechnology

ICES  
Institute of Chemical and Engineering Sciences

IHPC  
Institute of High Performance Computing

IMRE  
Institute of Materials Research & Engineering

IMCB  
Institute of Molecular and Cell Biology

IME  
Institute of Microelectronics

MOE  
Ministry of Education

NYP  
Nanyang Polytechnic

NHG  
National Healthcare Group

NLB  
National Library Board

NTU  
Nanyang Technological University

NUS  
National University of Singapore

NP  
Ngee Ann Polytechnic

RP  
Republic Polytechnic

SAM  
Singapore Art Museum

SIMTech  
Singapore Institute of Manufacturing Technology

SP  
Singapore Polytechnic

SingHealth  
Singapore Health Services Pte Ltd

TP  
Temasek Polytechnic