

Excursion

On the fourth day of the camp, students traveled to the southern tip of the island city of Mumbai, where the Tata Institute of Fundamental Research (TIFR), one of the premiere science research institutes of the country is located. TIFR Director Prof. Mustansir Barma gave an overview of the history of the institution and the cutting edge research that happens in various departments at TIFR. The students then split up into small groups and visited different laboratories, where they interacted with scientists. The scientists were quite impressed by the questions that some of the students asked. After lunch, the students visited the Nehru Planetarium, where they watched the show - 'The Awesome Universe'.



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The host institution of 2010 ASC was Tata Institute of Fundamental Research (TIFR), Mumbai, India. The event was organised by Homi Bhabha Centre for Science Education, a National Centre of TIFR.

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Asian Science Camp 2010

The primary aim of the Asian Science Camp, from its inception in August 2007, has been to inspire talented youth of Asia to pursue careers in science. The idea of the Asian Science Camp was conceptualized by the Nobel laureates Prof. Yuan-Tseh Lee (Chinese Taipei) and Prof. Masatoshi Koshiba (Japan) at the the 55th annual meeting of Nobel Laureates and Students in Lindau, Germany in September 2005 where they noticed that there was a poor representation of Asian students.

The fourth Asian Science Camp was held in Mumbai, India. The previous camps were successfully held at Taipei (2007), Bali (2008) and Japan (2009). The cosmopolitan city of Mumbai (formerly Bombay) is the commercial and entertainment capital of India, vibrant with energy and life.

Students from seventeen countries across Asia and ten distinguished scientists including two Nobel laureates participated in the camp. At the 2010 Asian Science Camp, 198 students interacted with their peers from other Asian countries and engaged in discussion with eleven leading scientists, largely of Asian origin. The program included plenary lectures, camps of small group interactive sessions, and poster making sessions of 3 to 5 member teams. Each team had students from different countries, who collaboratively made a poster. The teams competed for awards to the best five posters. The closing function included a program on dances of India enjoyed by all.





Posters

Mid-day, 21st August... The Unison Halls at Hotel Four Points by Sheraton was a site of intense intellectual and colorful activity.... the poster preparation session was under way. A wide range of themes was selected by students. Predominant among the themes were those pertaining to applied research areas like energy, climate change, nanotechnology and biotechnology. A few groups also focused on theoretical areas like symmetry and particle physics. Students used interesting ways of images.

thought so. A Malaysian participant believes that the reason was cultural differences -the different styles of thinking and communication. An Indian wanted to elaborate more on certain concepts while his team members wanted the text to be more precise.

inspired by plenary lectures by particular speakers, while others derived their inspiration from the camp sessions. Seven judges shortlisted 9 posters for oral presentations, of which five won medals. The Gold medal went to 'The Transformers - Trap to Kill AIDS'; Silver medals were awarded to two posters - 'Water Greenification' and 'Don't be fools, Use Biofuel'; while Bronze Cell-Green Energy Redefined'.





think globally, act locally !! (to solve onvironmental proves)

Some of them narrated their personal experiences as opposed

to talking about science which is nice but if they can add their

Poliakoff's lecture... coming to India has been a completely

life-changing experience. (Sam Wong, New Zealand)

I think the camp is a really good idea... better than the

lectures because we get to talk to them (Leaders), for

a lot better in the camp. Prof. Matsudaira was feeling

never went back. (Sam Wong, New Zealand)

better than others ... (Azumi Hashimoto, Japan)

example, Prof. Kobayashi - we got a lot more from the camp,

we could ask much more questions and Prof. Kobayashi was

Favourite speaker - Prof. Kobayashi - I understood his lecture

pressurised for time... he left his slide open all the time but

personal experiences that is really nice. Personally I liked Prof.

I think it would be nice if there was some (more) time for sight seeing... we have a very tight schedule like 9.09, 11.47... (Cheng, Singapore and Sam Wong, New Zealand)

Prof. Yi Rao... Lecture on cells and

Truly ame Zing work on Limbal Ston cell.

stem cells was very interesting

(Bazaraly Beknur, Kazakhstan)

Impressions

(there should be) ice-breaking activities... from the day I came to India it has been lectures and lectures and lectures and in the night we meet in the camp which is another lecture and then go to sleep. So I thought you could extend this to 10-11 days cause I think this is too tight, really tight... (Sangmin Oh, Korea)

Green Chem B Imlovin' it !!!

There were new things I hadn't heard before (in biology); they were described in vivid ways.

R. Ernst's lecture is great! 大楼了!

I took inspiration from Prof. Matsudaira. He is an expert from the field I have chosen and talked about the field to the general public, it is very difficult to, in a sense, translate research for the general public. (Sangmin Oh, Korea)

We liked the food, desserts - ice-creams!

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Camp is good because we are divided into groups, we have more time and longer discussions with the experts and exchange of ideas...

I think the way we ask questions – we raise our hands... may be we can write and pass it on to the Prof. and he can choose which question is more important or interesting...

Taiwanese students (Jen-Wei Hseuh, Jui-Tsen Yu, Hsij-Hang Yeh, Po-Hsiang Liao)

Prof. Kobayashi rocked!

Prof. Matsudaira - he told us how he started doing biology. Even he was interested (in biology)... for them... you know that story...(Cheng Herng Yi, Singapore)

Prof. Ernst -He had the widest variety of interests that I've ever known and still he is an accomplished chemist. (Sangmin



The Talks

The plenary lectures were on a wide range of themes. Some lectures were irresistible invitations to fascinating areas of research like Prof. Poliakoff's lecture on 'Green chemistry and supercritical fluids', Prof. C. N. R. Rao's lecture on 'Nanoworld', Prof. Balasubramanians' lecture on 'Cells and stem cells' and Prof. Yi Rao's lecture on 'Genetics and behavior'. Prof. Kobayashi and Prof. T.V Ramakrishnan and Prof. Jainendra Jain, talked more about particular theories of science, tracing their historical roots and the challenges they faced. The importance of developing techniques and instruments in scientific research was emphasized by both Prof. Richard Ernst and Prof. Paul Matsudaira, who have made significant contributions in these areas. Prof. Poliakoff and Prof. Ernst brought in the issue of societal relevance of scientific research and sustainability. Prof. Poliakoff discussed the issue of using green chemistry to solve environmental problems.

attention. Prof. Poliakoff Included very interesting and humorous anecdotes. His Einstein-like hairstyle and wand-like pointer augmented his charm. Prof. Ernst has an interesting style of weaving in both his personal and professional life experiences into his talks. Some of the speakers used interesting analogies to explain concepts. Prof. Balasubramanian for instance, used the terms 'hardware' and 'software' to explain how both biology and environmental influences are instrumental in making a 'person' while he was discussing reproductive cloning. Prof. Ernst also used interesting analogies and cartoons to explain the scientific concepts underlying NMR imaging. Prof. Matsudaira, Prof. Mayor as well as Prof. Poliakoff used fascinating videos to stimulate curiosity and awe. Some speakers used thoughtprovoking questions to structure their talks. Prof. Matsudaira devoted an entire session to just answering students' questions that ranged from his personal career to how to solve the ozone layer problem using genetically engineered microbes!

What kinds of problems should the next generation of young scientists take up? What kinds of life-skills do they need to be equipped with? How should they learn? Many speakers gave valuable advice on these issues. Prof. Yi Rao, while discussing



when to play????

though he did a chemistry degree. and he started by washing dishes

Poliakoff = Einstein - moustache ! + You Tube

Oh, Korea)

The professors had different presentation styles, some were better... one of leaders was very interesting in the camp and very engaging... I believe may be it is a lot harder with a huge audience... I think we should have a lot more camps than lectures.

how Seymour Benzer pioneered the area of neurogenetics, talked about how every researcher is confronted with the dilemma of whether to be 'safe' or 'daring' when choosing problems to work on. On the issue of life skills, Prof. Ernst talked about how besides science one also needs to have hobbies and passions. In his talk on Central Asian painting art, he had a slide which read, 'Never forget your passion; Do not become a one-sided nerd'!

Paul Mastudaira's advice to young researchers is to never view mistakes as failures, but to view them as significant stepping stones to making great discoveries. Many speakers like Prof. R. Chidambaram, also emphasized the interdisciplinary nature of research and how as a researcher, one should also be well-read and open to ideas from other disciplines. In fact, some of the speakers described how they drew insights from other disciplines to solve problems in their research areas in innovative ways.





Prof. R. Chidambaram



Some interesting questions Madhusudan Raman How reliable are statistics on global warming? Are the effects on glaciers anthropogenic? We do not fully How do cells sense understand the rules of how many cells they this field (Quantum must make and what Hall effect). How can kind of cells they we be confident about must make to make a the results and perfect body through predictions? developmental stages? Yuko Arai (Japan) nWei Hsueh (Chinese Is there any way to create particles with anti-particles? If not, does it mean that the universe was created with more matter than anti-matter? Or is there other process in the universe that decreases the amount of anti-matter since the creation of universe? During cellular motion, is the receptor machinery dynamic and based on external environment or predefined?

Heade

Do you agree that "science is running ahead of ethics"? How can we define ethics in a way acceptable by all?

a Jamal (Malaysia)

Is it possible to change cancer cells into stem cells because both cancer and stem cells divide indefinitely?

Chanawee Hirunpattaraslip (Thailand)