SPEECH BY PROF LEE SOO YING
AT THE OPENING CEREMONY OF
“WORLD YEAR OF PHYSICS – SUMMER CONFERENCE – LOOKING TO
THE NEXT 100 YEARS IN PHYSICS”
AUGUST 10, 2005

Mr Tharman Shanmugaratnam,
Minister for Education

Prof. Su Guaning
President, NTU

Distinguished Guests
Ladies and Gentlemen

When Prof. Chang Ngee Pong, our Nanyang Professor, suggested a summer conference to celebrate the United Nations endorsed “World Year of Physics 2005” late last year, the new School of Physical & Mathematical Sciences jumped on board. In the process, we drew in the National University of Singapore and the Science & Engineering Research Council of A*STAR, since we all share a common interest in nurturing a thriving Physics community in Singapore.

Our teachers and the Ministry of Education have done a marvellous job in providing an excellent science and mathematics education for our students in our secondary schools and junior colleges. It is clearly among the best in the world. Last month, five Singapore students competed at the 36th International
Physics Olympiad held in Salamanca, Spain. They won three Gold and two Bronze medals, and Singapore was placed 5th out of 74 participating countries. Next year, in July 2006, Singapore will host the 37th International Physics Olympiad, and Nanyang Technological University will be the key organiser with Prof. Xu Shuyan as chair of the organising committee. About 80 countries will be participating in the event.

Interest in science and mathematics, and physics in particular, at the school level is very high. There are about 9,600 students in the science stream each year in our junior colleges, and I estimate that about 6,000 of them read Physics at A-levels, and about 1,500 of them score a distinction in the subject! So, unlike most other countries in the world, we do have both quantity and quality in the pool of potential physics majors for both universities. The issue is how to catch them?

For the students in the audience, you can find leaders trained in physics in many echelons of our society. Physics graduates are also technologically conversant decision makers. Our Deputy Prime Minister and Coordinating Minister for Security and Defence, Dr Tony Tan, majored in physics as an undergraduate. Our Chief Defence Scientist, Prof. Col. Lui Pao Chuen, was a physics major. Mr Ng Kok Song, the Managing Director (Public Markets) of the Government Investment Corporation of Singapore, who invests our country’s reserves, was a physics major. And Prof. Phua Kok Khoo, the creator and Chairman of World Scientific Publishing Co, the largest independent publishing house for science books and journals in the world and based in Singapore, was a physics major. I’m sure that the study of physics has helped them in their challenging careers.

There are many interesting careers open to physics graduates. Many of you students may think that teaching is the main career, but in fact only about 20% of our physics graduates take up teaching. The other 80% pursue higher degrees, engage in R&D activities, work in industry and called engineers, employed in statutory boards, in the financial sector, etc. Physics graduates are important to the economy, as physics is the foundation for all of
engineering and many scientific disciplines, including the biomedical sciences, communication technologies and aerospace.

The physics curriculum at both NTU and NUS follows the best practices in the field. For example, Prof. Alfred Huan, the Head of the Division of Physics and Applied Physics at NTU, has a course on Statistical Mechanics that is recommended by Prof. Gerardus ’t Hooft, a Nobel Laureate in Physics, at his website on “How to become a good theoretical physicist.” But students may find the skyscraper of physics very tall. To paraphrase Einstein, there may be a need to make physics “as simple as possible, but not simpler,” to integrate, to make it interdisciplinary. Adding more dimensions may make Physics more interesting and less daunting.

For the academic physicists, there is a Zen koan: You are on top of a 100 feet pole. Now, how do you advance and get more followers? The important issues in attracting and educating the next generation of physics graduates will be discussed in depth at a forum on Friday – the final day of this Symposium.

The physicists among us have solved many deep problems of nature. I’m sure that they will be up to this challenge of increasing the number of disciples in physics and taking the subject interdisciplinary and making it relevant to the times and important to the economy.

May I wish everyone an enjoyable international symposium and may we gain an understanding of some of the important questions and challenging interdisciplinary problems that physicists are confronting today.

Thank you.