Address by Radm Teo Chee Hean, Minister for Education and Second Minister for Defence

Professor Shih Choon Fong Vice-Chancellor, National University of Singapore;
Professor Roger Howe Chairman, IMS Scientific Advisory Board;
Professor Chong Chi Tat Chairman, IMS Management Board;
Professor Louis Chen Director, Institute for Mathematical Sciences;
Distinguished guests;
Ladies and Gentlemen:

It is a great pleasure to be here today.

Nature of mathematics
Throughout the centuries, the development of mathematics has been fuelled by the need to solve real-world problems and the intellectual desire to search for truth.

Mathematics provides the logical foundations for scientific inquiry and the construction of theories of physical science. It also serves a very practical and important function in aiding engineering design and managing financial resources.

Applications of mathematics
In the twentieth century, the applications of mathematics have permeated almost every discipline of human knowledge, including the physical and biological sciences, statistics, computer science, engineering, medicine, economics, finance, law and linguistics.

The advances of computer technology in the past two decades have transformed the way mathematics is applied to science and technology. More and more computer intensive methods and algorithms are replacing the traditional analytic solutions to problems. Ever faster and more memory-capacious computers have made it possible to conduct more in-depth and refined studies in a shorter period of time. For example, images and special effects in movies can be simulated by solving mathematical equations using computer algorithms.

New emerging scientific problems, which require a multi-disciplinary approach to their solutions, have also influenced the development of mathematics. Recently, the human genome project has produced a draft human genome sequence. The next step is to understand the way biological cells and their genes and proteins behave. Mathematics will be useful in the modelling of biomolecular systems and the analysis of biological data in the multi-disciplinary research of this new discipline. It will not only contribute to the quality of life but also shed some light on the perennial question of life itself. This will undoubtedly require new ideas in mathematics.

Science and technology in Singapore
Singapore has always recognised the vital role of a firm foundation in science and technology for the economic development of a nation. This is especially so for Singapore as it lacks natural resources.

Our schools have played an important part in laying the foundation for Mathematics education. I am very pleased to note that Singapore has emerged first in Mathematics in the 38-country Third International Mathematics and Science Study conducted in 1999. Singapore ranked second in Science. 93% of our students were placed in the international top half for Mathematics.

With this broad and firm foundation, we are better able to build a large pool of highly skilled and well-educated scientific and technological manpower for the new economy. And to compete head-on with the developed countries, we will need to create niches of world-class excellence in science and technology.

The establishment of an institute devoted to the mathematical sciences is testimony to this commitment to build capabilities at the highest levels to support our push to a knowledge economy.

Role of the Institute

The Institute for Mathematical Sciences seeks to be modelled after successful mathematical institutes in Europe and North America. Its function is to provide a stimulating environment for scientists of diverse backgrounds, local and foreign, to interact and collaborate in research. It focuses not only on mathematics itself but also on multi-disciplinary research involving the applications of mathematics. Its objective is to solve important scientific problems, produce new results and techniques for theoretical developments as well as applications, and in the process, stimulate interest in the study of the mathematical sciences in educational institutions and train young mathematical scientists. In this, the Institute can look forward to building on the good foundation that our schools have laid in setting high standards especially in Mathematics and Science.

I would urge researchers and professors at the Institute to pay particular attention to igniting in our young an interest in the fundamental disciplines, and encouraging them to consider research as a viable career option. The future quality of the Institute and its long-term sustainability depend critically on your ability to nurture a long succession of curious and intense minds to join you in your area of interest.

You will undoubtedly be helped in your venture by the existence of an attractive lounge. I am told that this is where the researchers and scientists will interact, exchange ideas and debate over coffee. Paul Erdös, a prolific mathematician who combined extraordinary talent with great devotion to mathematical research, once said, "A mathematician is a machine for turning coffee into theorems." I hope that this will be an on-going phenomenon at the Institute for Mathematical Sciences.

I understand that the Institute will focus on a different theme or themes on a regular basis and collaborative research will cover a wide spectrum of fields in the course of time in accordance with local needs and international trends. One of the themes of the institute's inaugural programme concerns computer security and data validity, which are crucial for fast, reliable, and secure communication, and are of importance to Singapore.

Through its programmes, the Institute hopes to bring to Singapore talents who, after a period of familiarizing themselves with the country, may wish to relocate and work in Singapore. Ultimately, it also aims to help Singapore establish its leadership in the mathematical sciences in the region and beyond.

The Institute will play a unique role in training young scientists, building research capabilities and creating knowledge in our knowledge-based economy. I wish you every success in this endeavour.

I have the pleasure now of declaring the Institute for Mathematical Sciences open. Thank you.