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**Title : THE MALAYSIAN NANOTECHNOLOGY FORUM (MNF 2005)**  
**AND THE ANNUAL FUNDAMENTAL SCIENCE SEMINAR (AFSS**  
**2005)**

YB Datuk Abdul Ghani Othman,  
Chief Minister of Johor;

Tan Sri Halim Ali,  
Chairman of the Board of Directors, UTM;

Y. Bhg. Datuk Mohd Zulkifli Tan Sri Mohd Ghazali,  
Vice Chancellor of UTM;

Distinguished guests and participants,

Ladies and Gentlemen,

Assalamualaikum Warahmatullahi Wabarakatuh  
Good Morning

1. I am delighted to be here today to officiate at the opening ceremony of the Malaysian Nanotechnology Forum 2005 and the Annual Fundamental Science Seminar.

2. It is indeed a pleasure for me to be at this august assembly of eminent scientists and scholars attending the Malaysian Nanotechnology Forum and the Annual Fundamental Science Seminar 2005.

Ladies and gentlemen,

3. Malaysia aspires to become a developed nation by 2020. Harnessing the energy and ingenuity of our scientific community is essential for a prosperous and innovative future of Malaysia. We know that the world changes rapidly and dramatically. With these changes, the world becomes all the more connected and integrated, where boundaries no longer exist. Economic growth is being driven increasingly by the application of knowledge and ideas, rather than the production and trade of physical goods.

4. Every few decades, a new science emerges which has a profound effect on the world's population. One important early example was the development of the printing press which made it possible to permit large masses of people to communicate with each other and thus to be informed about the various development around the world. A few decades later the steamship was invented. The steamship permitted people to travel around the world at a rapid pace, compared with the slow sailing ships in use at the time, and this brought the people of the world closer together.

5. Now another science is evolving which may have a greater effect on the

population of the world than any other previous sciences. This new science will bring about a major industrial revolution far greater than anything that has happened before. It will greatly improve health, create wealth and almost eliminate man-made pollution. This new science is called nanotechnology.

Ladies and Gentlemen,

6. The start of the 21st century will be remembered as the era in which nanotechnology flowered. We are seeing new technologies, ideas and things emerge in profusion, all of which are destined to bring about big changes in our everyday lives. But let's not forget that the groundwork has to be laid for this flowering of nanotechnology. It was about fifty years ago that the word "nanotechnology" was coined, and the latter half of the twentieth century could be considered as its incubation period. As first described in a lecture titled, 'There's Plenty of Room at the Bottom' in 1959 by Richard P. Feynman, there is nothing besides our clumsy size that keeps us from using this space. In his time, it was not possible for us to manipulate single atoms or molecules because they were far too small for our tools. Thus, his speech was considered at that time completely theoretical and seemingly fantastic. He described how the laws of physics do not limit our ability to manipulate single atoms and molecules. Instead, what was holding us back was our lack of appropriate methods to do so. However, he correctly predicted that there would inevitably come a time when atomically precise manipulation of matter would become a reality.

7. Today, nanotechnology has finally arrived. It is a new field of science and technology where the component parts can be measured in a billionth of a metre. This not only means that complex and sophisticated systems can be incredibly small, but because they work at the atomic scale, new principles of physics apply and novel and revolutionary applications are indeed possible. Nanotechnology is small science with huge and immense potential. Nanotechnology exploits benefits of ultra small size, enabling the use of particles to deliver a range of profound and important benefits.

8. Nanotechnology not only enables further advancement of micro- and bio-tech but creates new avenues for research and development whilst bringing drastic impact on industries, economies and societies in the coming decades. A wealth of innovative new technologies across a vast array of fields including agriculture, healthcare, information technology, energy production and utilization, homeland security, national defence, aerospace and environmental protection among others becomes possible because of nanotechnology. Indeed, it will transform and displace many existing products with better properties, better functionality and reduced energy consumption. The economic potential arising from nanotechnology is tremendous. What this ultimately boils down to is that today, nanotechnology is a field worth being looked into seriously as an area for investment and for future.

9. Nanotechnology is about our future way of life. The worldwide annual industrial production in the nanotech sectors is estimated to exceed USD1 trillion in 10 - 15 years from now, which would require about 2 million nanotechnology workers. If we are to develop ourselves, Malaysia must be part of this important revolution.

10. So far Malaysia has spent more than RM140 million IRPA grants on a number of nanotechnology-related research projects. Nanotechnology research is conducted by separate research groups without central coordination and planning. Malaysia is

fortunate to be part of the Asia Nanotechnology Forum. Japan started the national nano science and technology program since the mid 1980s and many of our ASEAN neighbours (including Thailand, Singapore, Vietnam) have already embarked on nanotechnology since the early millennium. In 2003, Asia contributed over USD1.5 billion, - half of global nanotech funding - and it is continuously raising its role in the global nanotech arena. Along with the Asia Nanotech Forum for building the Asia Nano Science and Technology Initiative, Malaysia must play our role in order to enhance the global competitiveness and contribute to the prosperity of the nation.

Ladies and gentlemen,

11. Malaysia is approaching the end of its 8th Malaysia Plan. Over the last five years, the government has undertaken a massive program of investment to ensure Malaysia has the modern, world class infrastructure required to become more innovative, connected and competitive. The government has expanded its actions beyond previous initiatives in science and technology, engaging business, industry and community in the drive to become more innovative and forward looking. Recognising the importance of integrated nanotechnology, I am pleased to learn that the Ibnu Sina Institute is proposing the creation of the Malaysian National Nanotechnology Initiatives or Inisiatif Nanoteknologi Nasional (INN). A Malaysian Nanotechnology Centre will reflect the central role of nanotechnology in Malaysia's economic development in the coming decades.

12. It is hoped that with INN, Malaysia will benefit from advances in nanotechnology-related sciences by clustering and linking the resources and knowledge of our researchers, industry and government. The Malaysian Nanotechnology Centre will coordinate research and development, investment opportunities, commercialisation activities and industrial partnerships in strategic areas such as materials, process, fabrication, life science, IT/electronics, environment and education. These areas are likely to provide the best sustainable growth for Malaysia.

13. The government is very much interested in promoting Nanotechnology as one of the top priority areas in Science and Technology. One of the most important tasks of INN therefore will be to prepare Malaysia's National Master Plan on Nanotechnology. One of the key performance indices of the success of nanotechnology is strategic alliance including the mechanism of integration and co-ordination between the R & D players or scientists, the policy makers, the technology developers and industries, the financiers and of course, most importantly, the public who will benefit from it. Some of the key issues that must be addressed include identifying key organisations, strategic research areas, building interdisciplinary research projects, education programs and management of the nano programs.

14. Nanotechnology is about innovation at the atomic or molecular scale. Innovation means finding new or better ways to do things, creating new products and technologies. The Malaysian government will continue to commit to innovation in nanotechnology at every level of the economy and community. Part of the INN will be the enhancement and extension of world-class nanotechnology research institutions, strong expenditure on R&D in nanotechnology, a competitive business environment, a robust education and training system, a highly skilled, educated and diverse workforce, efficient infrastructure and integrated involvement in nanotechnology activities.

15. I am proud to acknowledge that currently in Malaysia there are research

activities of world class standing being conducted by our local scientists in the universities and research institutes. They are currently working on important areas such as nanostructured mesoporous materials, hybrid catalysts and others. In addition, there are many young Malaysian scientists undergoing post-graduate studies in areas of nanotechnology locally and overseas.

Ladies and gentlemen,

16. This new wave of industrial innovations requires early integration of science, technology and manufacturing to achieve world class product and services. That means 'skilling up' and improving access to education and training. Nanotechnology is about people. It is about making sure we educate, integrate ideas, technology and knowledge to produce better products with novel properties at the nanoscale which enhances our environment and standard of living.

17. It is therefore critical that young people and the broader community recognise that nanotechnology-related careers are integral to the development of a successful economic future. Many sections of the community need to understand nanotechnology and the government is keen to ensure that nanotechnology is understood by the society.

18. Pursuing nanotechnology is a global trend and requires global cooperation. We must therefore be integrated into the global nanotech community. In this context, we are honoured to be a network member of the Asia Nano Forum and are keen to work closely with ANF network and contribute to the regional and global advancement in nanotechnology.

19. Becoming more innovative and creative will ensure that Malaysia not only keeps abreast with the rest of the world, but it will become a global player in nanotechnology that will drive future economic growth. The outcome of many of the nanotechnology endeavours will not happen overnight. Industries must be at the forefront in adopting this emerging technology so that when the time comes, the country is well prepared. We must therefore start today.

Ladies and gentleman,

20. I am pleased to be part of this important event. I believe this is an important step in our journey towards ensuring our place in this exciting new field. To all our distinguished delegates attending the Asia Nano Forum, I wish you a fruitful meeting. Your invaluable input to the Malaysian Nanotechnology Forum Committee is highly appreciated. To the Ibnu Sina Institute, I congratulate you for your success in hosting these events. I hope the Institute will continue to become one of the leading nanotechnology centres in Malaysia.

21. On that note, I officially declare open the Malaysian Nanotechnology Forum and the Annual Fundamental Science Seminar 2005.