

**Welcome Remarks by NUS President Prof Tan Chorh Chuan  
at the Institute of Electrical and Electronics Engineers (IEEE)  
Life Sciences Grand Challenges Conference – Opening Ceremony  
University Town, 2 December 2013, 9.30am**

Ms Yong Ying-I, Permanent Secretary, NRF Singapore  
Prof Sir George Radda, Chairman, Biomedical Research Council, A\*STAR  
Prof Peter Staecker and Prof Moshe Kam, Presidents, IEEE  
Prof Nitish Thakor, Conference Chair and Director, SINAPSE  
Prof Zhang Yuan-Ting, Programme Chair and Director, Biomedical Engineering (CUHK)  
Distinguished Guests, Colleagues  
Ladies and Gentlemen

Welcome!

On behalf of the National University of Singapore, I warmly welcome all our guests and delegates to our campus and to the Institute of Electrical and Electronics Engineers (IEEE) Life Sciences Grand Challenges Conference. NUS is honoured to play host to such an important meeting and to welcome such a distinguished gathering of speakers and participants from around the world.

I would like to congratulate Prof Nitish Thakor and Prof Zhang Yuan-Ting for putting together a truly fascinating scientific programme.

I think this conference is unique in at least 3 ways:

First, this is a conference about interfaces – not just the interface between the disciplines of Engineering and Biomedical Sciences, but also the convergent overlaps between bio-, nano- and info- technologies. These interfaces are very exciting and fertile zones for highly original ideas, experiments and discoveries.

Second, this is a conference about translation – how to bring discoveries into useful applications that help our patients, restore or assist human function and address major needs in our society.

Finally, this is a conference that seeks to engage with real world issues. It challenges participants to problem solve the world's grand challenges, and participate in a deeper discussion about how we can work together to approach these in an effective and socially responsible manner.

The three aspects of this conference which I have highlighted are really essential but also very difficult to achieve even in, or I might even say particularly in, universities which tend to be bounded by the requirements of disciplinary based departments. NUS, like many other universities, has taken different approaches to promote high-impact cross-disciplinary research and its translation into solutions for important real world problems.

Allow me to briefly describe three such initiatives at NUS.

First, we believe we have to start by actively promoting cross-disciplinary interactions among our students. A good example is the University Town where we are currently located. The NUS University Town was designed to bring together a highly diverse body of students and faculty and to provide them with conducive facilities and spaces that strongly encourage interactions. Each week, about 10,000 students from all Faculties in NUS make use of the educational, sports, arts and social facilities in University Town. About 2,400 undergraduates stay in 4 Residential Colleges in University Town. The admission process randomises students so as to create the maximal diversity in each Residential College. The students staying in the College also take 5 courses together in small, multidisciplinary seminars that are designed to enable peer-learning across disciplines and cultures.

Second, we have created a number of institutes and programmes specifically focused on the interfaces of key disciplines. For example, the NUS Mechanobiology Institute was set up in 2009 as a Research Centre of Excellence funded by Singapore's National Research Foundation and Ministry of Education. The Institute explores the effects and interactions between physical forces at the nano-scale level and the biology, behaviour and differentiation of cells. Some of this work has a direct translational focus. For instance, MBI is developing point-of-care lab-on-a-chip systems to detect and diagnose

human diseases through the capture of the targeted disease cells. One such biochip, the CTChip has recently been commercialized by an NUS start-up, Clearbridge Biomedics.

Similarly, the Singapore Institute for Neurotechnology (SINAPSE) explores exciting interfaces between neuroscience and bioengineering. The institute's programmes and activities have flourished under Prof Nitish Thakor's leadership, and its research on Peripheral Nerve Prosthesis has recently won a \$10 million Competitive Research Programme grant from NRF.

Third, since 2009, NUS has clustered together research units and centres which are doing work in 4 important areas corresponding to grand challenges for Asia and the world. These integrative research clusters cover finance and risk management, ageing, sustainability solutions, and biomedical sciences and translational clinical research. The clusters convene research workshops and meetings, encourage collaboration within the cluster and identify major research questions which members of the cluster are interested in working more cooperatively on. For example, the finance and risk management cluster has developed a key focus on life-cycle financing issues in ageing populations.

Beyond the walls of our campus, NUS is a major driver and active part of the overall Singapore research and innovation ecosystem. NUS has numerous joint appointments and research collaborations with the intramural research institutes of A\*STAR.

Together with the Nanyang Technological University, NUS is also a very active partner in the Campus for Research Excellence and Technological Enterprise (CREATE) programme. You might have seen the CREATE research buildings which are located at within the NUS University Town. CREATE is effectively an international research collaboratory. It is a unique model with 15 interdisciplinary research projects involving leading global universities such as MIT, ETH Zurich, Technion, Berkeley, Shanghai Jiao Tong and Cambridge, who have principal investigators leading and conducting research in Singapore. The location of CREATE in University Town certainly adds a great deal to the vibrancy of the NUS campus and provides many opportunities for faculty and

students from different leading universities and disciplines to meet each other and to spark off new insights and collaborations.

Shortly, we will be hearing more of the national level perspectives from Permanent Secretary Yong, but a key point is that Singapore in general, and NUS in particular, are very interested in high impact research at the interfaces of key disciplines, translational research and to contributing insights and solutions to help address some of the grand challenges that the world faces. It is therefore wonderful that we are able to have this IEEE Conference here at NUS in Singapore.

In closing, I would like to you a most enjoyable and fruitful conference over the next two days.

Thank you.