

## PRESS RELEASE

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### TEN OUTSTANDING YOUNG SCIENTISTS RECEIVE PRESTIGIOUS NRF RESEARCH FELLOWSHIPS WORTH US\$1.5M EACH

- *10 outstanding young scientists awarded the NRF Research Fellowship, out of 186 applications received from around the world*
- *Each NRF Research Fellow would lead an independent research team at a host research organisation in Singapore*

1 The National Research Foundation (NRF), on the recommendation of its Scientific Advisory Board (SAB), announced today 10 outstanding young researchers to be named NRF Research Fellows. (See **ANNEX 1** for the list of members.)

2 The aim of the NRF Research Fellowship is to build a pool of young, brilliant, passionate researchers in various fields of science and technology to add to Singapore's growing research talent pool. The NRF Research Fellowship will provide each Research Fellow with up to US\$1.5 million in research funding support over three years to perform cutting-edge research in Singapore, with the possibility of receiving a second round of three-year funding. (See **ANNEX 2** for a write-up on the NRF Research Fellowship programme.)

3 The NRF received a total of 186 applications from researchers of various nationalities, including the US, Europe, Middle East, China, India and Singapore. They are currently doing research in top universities, including Harvard, Cambridge, Yale, Caltech, Stanford, MIT and Princeton. After two rounds of stringent evaluation, 19 candidates were short-listed to come to Singapore for technical presentations and an interview by the NRF Scientific Advisory Board. Ten were finally selected as the NRF Research Fellows. (See **ANNEX 3** for a brief write-up on the awarded Research Fellows.)

4 This is the second group of Research Fellows that NRF has attracted to Singapore. The inaugural group of Research Fellows has already started their research in Singapore. (See **ANNEX 4** for an update.)

5 Dr Curtis Carlson, SAB co-chairman, said: “As was the case with the first group last year, the candidates we interviewed were again of top calibre, comparable to recipients of the best fellowships elsewhere. With the resources from the fellowship, we have no doubt that these young scientists will carry out great cutting-edge research, with high potential for breakthrough results.”

6 Dr Francis Yeoh, CEO, NRF, said: “We are pleased that the NRF Research Fellowship programme continues to attract significant interest of researchers from around the world. We expect that this annual injection of NRF research fellows will contribute greatly in building up a critical mass of top scientific talent that will enrich the growing research community in Singapore, establishing Singapore as a hub for cutting-edge research.”

6 Dr Robin Chi Yonggui, who is from China and currently a postdoctoral fellow in UC Berkeley, said: “I am thrilled to be selected as a Research Fellow under the highly-coveted NRF Research Fellowship programme. The grant will give me the opportunity to start my own lab and work towards achieving my lifelong ambition in science and research which I hope will ultimately benefit society.”

Dr Edith Elkind, who is from Estonia and currently an assistant professor at the University of Southampton, said: “I’m very excited to be a recipient of the NRF Research Fellowship programme. This is a great opportunity for me to embark on building a world-class centre in algorithmic game theory in Singapore. This will benefit companies which will be able to come together and share benefits of their collaborations more fairly and efficiently.”

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## **The National Research Foundation (NRF)**

The National Research Foundation (NRF), set up on 1 January 2006, is a department under the Prime Minister's Office.

The NRF sets the national direction for research and development (R&D) by developing policies, plans and strategies for research, innovation and enterprise, funds strategic initiatives, builds up R&D capabilities and capacities through nurturing our own and attracting foreign talent, and coordinates the research agenda of different agencies to transform Singapore into a knowledge-intensive, innovative and entrepreneurial economy. It provides secretariat support to the Research, Innovation and Enterprise Council (RIEC), chaired by the Prime Minister. A five-year budget of S\$5 billion has been allocated to the NRF in 2006 to achieve this mission.

The NRF aims to:

- Transform Singapore into a vibrant R&D hub that contributes towards a knowledge-intensive, innovative and entrepreneurial economy; and

- Make Singapore a talent magnet for scientific and innovation excellence.

For more information, please visit [www.nrf.gov.sg](http://www.nrf.gov.sg).

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## ANNEX 1

### Selection Panel for the NRF Research Fellowship 2<sup>nd</sup> Call

<b>Members</b>	
1.	<b>Dr Curtis R Carlson (Co-chairman)*</b> President and CEO, SRI International.
2.	<b>Prof James D Foley*</b> Interim dean, professor of interactive computing and the Fleming Chair in Telecommunications College of Engineering, Georgia Institute of Technology.
3.	<b>Prof Louis-François Pau*</b> Professor, Rotterdam School of Management (mobile & internet network).
4.	<b>Prof Robert H Grubbs*</b> Professor of Chemistry, Caltech.
5.	<b>Prof Lui Pao Chuen</b> Advisor, National Research Foundation.
6.	<b>Prof Leo Tan</b> Former National Institute of Education Director

\* Scientific Advisory Board members.

## **ANNEX 2**

### **Fact sheet on the NRF Research Fellowship**

#### ***Aim***

To attract promising young scientists from all over the world to conduct independent research in Singapore.

#### ***Background***

The NRF Research Fellowship is a globally competitive scheme that seeks to build up a pool of bright, passionate researchers in various fields of science and technology to augment Singapore's burgeoning research talent pool. It provides attractive funding to brilliant, young scientists to carry out independent, cutting edge research in Singapore. Appointees will be offered concurrent faculty positions at local universities or other research organisations.

#### ***Terms of the NRF Research Fellowship***

1. The NRF Research Fellowship is open to all areas of science and technology with no quota on specific disciplines.
2. The NRF Research Fellowship, targeted at young talented post-doctoral fellows/researchers below the age of 40, is open to all nationalities.
3. Appointed Fellows will be given complete independence and freedom to pursue their own research directions.
4. Appointed Fellows will be free to choose the local host organisations to work in.
5. Each appointed Fellow will be provided with a research grant of up to US\$1.5 million over three years with the option of a second round of three-year funding provided at the discretion of NRF to support projects that exhibit a high likelihood of a research breakthrough.
6. The salary of an appointed Fellow will be covered over and above the research grant, pegged to that of an Assistant Professor at a local university.

#### ***Identification and Selection Processes***

NRF will invite applications once a year through open advertisements in prestigious scientific publications, as well as tap on local research organisations and other contacts to identify potential candidates.

A Local Evaluation Panel comprising representations of local research organisations and universities will shortlist applicants who qualify. Short-listed candidates will be invited to Singapore to present their proposals and visit local research organisations to identify potential hosts. The NRF Scientific Advisory Board will interview the short-listed candidates and make the final selection of applicants for the awards.

## **ANNEX 3**



### **Dr CHI Yonggui Robin**

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Dr Chi Yonggui Robin is currently a postdoctoral fellow in Prof Jean M J Fréchet's group at the University of California, Berkeley. He and his research team have developed bio-inspired polymer catalysts and new catalytic approaches for effective organic synthesis. He has also developed nano-scale polymer materials for anion recognition and water purification (i.e., removing contaminants and toxic ions, such as perchlorates, from water). Before moving to Berkeley in 2007, Dr Chi obtained his PhD in chemistry from the University of Wisconsin, Madison where he was an Abbott Laboratories Fellow. His thesis research under the guidance of Prof Samuel H Gellman focused on the development of organic catalysis and its application in making non-natural amino acids and peptidic foldamers of biomedical importance. Part of his research accomplishments has been protected by two patent applications and is being actively employed to develop peptide inhibitors as potential drugs. From 1998 to 2002, Dr Chi carried out his undergraduate education in Tsinghua University and Hong Kong Baptist University, supported by the prestigious Hong Kong Jockey Club Scholarship.

Dr Chi's core research interest concerns scientific challenges of both fundamental and applied significance. As he starts his career as an assistant professor, he plans to establish a chemistry-based multidisciplinary research program, in which cutting-edge science can emerge and important applications will be developed. In particular, his NRF-sponsored project will focus on the development of novel chemical strategies for the controlled modification of proteins, as briefed below:

Proteins play crucial roles in human health. One major effort in modern biomedical research and drug discovery relies on understanding and manipulation of proteins, which requires protein modifications. Dr Chi will develop novel chemical methods for the controlled modification of naturally occurring proteins in a desired and predictable manner under biocompatible conditions. An immediate impact of his research lies in the use of these methods to produce protein conjugates to extend circulatory half-life and reduce side effects of protein therapeutics (protein therapeutics are a fast-growing market valued at over US\$60 billion per year). Meanwhile, these methods will be used in labelling proteins to visualise and understand biological processes in order to develop new pharmaceuticals (annual global pharmaceutical market is projected to be valued at over \$1.3 trillion by 2020). In addition to its impact in biomedical research and medicines, Dr Chi's research will also lead to significant advancements in chemical synthesis. Overall, by addressing challenges in the frontiers of science, Dr Chi's programme will benefit Singapore's global competitiveness in innovative fundamental research and knowledge-intensive industries.



## Dr CHEN Xiaodong

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Dr Chen Xiaodong was born in Fujian, China. After completing his BS study in Chemistry and graduating with honors at Fuzhou University in 1999, he enrolled in the Institute of Chemistry, the Chinese Academy of Sciences for his MS study in the area of physical chemistry. In 2003, he moved to Germany for his PhD study and received his PhD degree in biochemistry (*Summa Cum Laude*) in the group of Prof Harald Fuchs at the University of Muenster in 2006. After that, he joined the lab of Prof Chad Mirkin at Northwestern University for his post-doctoral research work.

Dr Chen's research interest lies in the area of bio-inspired molecular assembly, nanofabrication, molecular electronics, and plasmonics. For instance, he developed several non-conventional methods to assemble biomolecules and nanoparticles into organised mesostructures on wafer-size surfaces and fundamentally addressed the role of the molecular interactions for the formation of such structures. Recently, he developed a new test-bed for molecular electronics based on chemical approaches, which can be easily used for in situ molecular wire synthesis in a tiny space and simultaneous measurement of molecular conductance and spectroscopic signal.

Dr. Chen has published more than 30 papers (20 as a first author) in prestigious refereed journals and filed three patents. Also, he has given more than 10 invited talks at universities of Germany, China, and the US. Due to his outstanding performance and innovative research work, he has been awarded more than 10 prestigious awards and fellowships, including Liu Yongling Excellent Students Scholarship, the best PhD Dissertation award at the University of Muenster and the Chinese Government Award for Outstanding PhD Student Abroad.

For the NRF Research Fellowship programme, he is proposing to design and fabricate novel nanostructure-biomaterials hybrid systems, which will be incorporated into electronic circuit to study the electronic signal transport through the biological matrix. This interdisciplinary project will create a knowledge base and technical platform for understanding and manipulating interfacial biological processes in a nanoscale dimensional constraint and regulating cellular functions by controlling the architecture at the interface between nanostructures and biomolecules. Many important fundamental scientific issues such as the nature of charge transport through proteins, photo-induced electron transfer within a nanoscale confined space, interfacial biological signaling processes, and inter-/intra-cellular communications will be addressed in the proposed research. Finally, this research proposal may promote the development of cellular electronics, organic bioelectronics, nano-bio-photovoltaics, and future portable and implantable clinical nanodevices.



## Dr Edith ELKIND

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Dr Edith Elkind was born in 1976 in Tallinn, Estonia. Throughout her high school years, she had a keen interest in mathematics. In 1993, Edith went to Moscow State University to obtain an undergraduate degree in Mathematics from the Department of Mechanics and Mathematics, and gradually developed an interest in practical applications of mathematical ideas. She decided on Computer Science for her PhD studies, and was admitted to Princeton University in 2000. There, she chose Algorithmic Game Theory as a topic of her PhD. Algorithmic Game Theory is a research area that combines ideas, tools and techniques from Computer Science and Game Theory, and also requires a strong background in Mathematics. It has practical applications that range from the design of ad auctions to network routing.

After obtaining her PhD in 2005, Dr Elkind moved to University of Warwick (UK) to work with Dr Paul Goldberg. Dr Goldberg was working on the decades-old problem of computing Nash equilibria in 2-player games, and came up with ideas that eventually led to resolution of this problem. Dr Elkind's work with Dr Goldberg was closely related to this topic. Together, they developed the first polynomial-time algorithm to compute Nash equilibria in a class of graphical games, and showed that an existing algorithm that was claimed to be capable of solving this problem for an even larger set of such games is incorrect. They also worked together on combinatorial procurement auctions, extending the work that appeared in Dr Elkind's PhD thesis.

In 2007, Dr Elkind seized an opportunity to visit Hebrew University on Lady Davis Fellowship, a prestigious fellowship that enables international young researchers to spend time at Israel's premier research institutions. During her time there, she mostly focused on studying computational aspects of various forms of dishonest behaviour in weighted voting games. This work has applications in political sciences and received coverage from international news agencies such as Science Daily.

Dr Elkind then moved to University of Southampton to assume a position of a Lecturer (a UK analogue of Assistant Professor). While at Southampton, she continued to work on weighted voting games. She also worked on general coalitional games, developing the first general model of stability in games with overlapping coalitions. She served on programme committees of several top conferences in Theoretical Computer Science, AI, and Computational Game Theory, such as ICALP, ACM EC, IJCAI, AAAI, AAMAS and ECAI, and is currently co-editing a special issue of the Journal of Autonomous Agents and Multiagent Systems on computational social choice, as well as a special issue of the AI Magazine on algorithmic game theory.



## Dr Frédérique OGGIER

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Dr Frédérique Oggier was born in 1977 in a village of the Swiss Alps. Despite a strong interest in languages, literature and culture, mathematics awoke her curiosity. She went to the University of Geneva and challenged herself to study mathematics and computer science. She soon developed a keen interest in both pure and applied mathematics. She first majored in pure mathematics before obtaining a degree in applied mathematics and computer science.

After graduating from Geneva University, she hesitated to move abroad despite being interested in discovering new cultures. But she finally decided to enrol in a doctoral programme in communication systems at the Swiss Federal Institute of Technology, Lausanne (EPFL), in Switzerland. She identified in coding theory the opportunity to use techniques from pure topics such as algebra to solve applied problems appearing in wireless communication. She thus went on studying at EPFL where she got a PhD in mathematics, focusing on algebraic coding for wireless communications. This led to her early journal papers in the IEEE Transactions of Information Theory.

For her post-doctoral studies, Dr Oggier felt that while she had mastered the necessary mathematical tools, she needed to enhance her engineering knowledge. She thus decided to move to the California Institute of Technology (CalTech), USA, where she spent two years in an Electrical Engineering department, learning about wireless communications, in particular about the emerging area of wireless security. She then moved to Tokyo, where she spent one year working on information theoretical security at the Research Center for Information Security (RCIS). Enjoying the Asian culture and way of living, she decided to stay in Asia. With a research agenda in coding and security, and equipped with algebraic tools, she moved to Singapore, where she is now an assistant professor in mathematics at NTU.

In her research project, a mathematical approach to security for wireless communication via information theory is proposed. Using tools from algebraic coding theory, the existence of wiretap codes will be investigated, and practical schemes to implement cryptographic primitives such as bit commitment and oblivious transfer over noisy continuous channels will be proposed. The generalisation of existing adversary models, mainly eavesdropping, to take into account active adversaries will also be considered. The aim is to bring both new mathematical results and theoretical means to evaluate the potential practical application of information theoretical security to wireless communication.



## Dr Hilmi Volkan DEMIR

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After his training in Ankara Science High School, Turkey's special school specifically dedicated to science, and graduated as the valedictorian in 1994, Dr Hilmi Volkan Demir received his BSc degree in electrical and electronics engineering with the highest honours from Bilkent University, Ankara, Turkey. In 1998, he went on to obtain his MS and PhD degrees in electrical engineering, including the prestigious Edward L Ginzton and Stanford Intel scholarships from Stanford University, California, in 2000 and 2004, respectively. In September 2004, he joined his alma mater, Bilkent University, as an assistant professor, where he holds joint appointments at the Department of Physics and the Department of Electrical and Electronics Engineering. In 2007, he received his Doçent (associate professorship) title from the National Higher Education Council of Turkey.

During his doctoral studies at Stanford, he worked with Professor David A B Miller and Professor James S Harris, Jr. His PhD research focused on the development of novel ultrafast multifunctional photonic switches incorporating quantum structures for high-density switching, which led to the production of the world's first chip-scale wavelength-converting crossbar switches. His current research interests and projects include the development of novel nanophotonic devices, nanocrystal embedded devices, III-nitride optoelectronic devices, and bio-implant RF devices. To date, he has proposed and successfully demonstrated white LEDs hybridised with multiple combinations of nanocrystals for high-quality solid state lighting; scintillators of nanocrystals on Si detectors, cameras, and solar cells for substantially enhanced photodetection and photovoltaics in UV; record-breaking III-nitride quantum electroabsorption modulators; and highly efficient spectral activation of photocatalytic nanocomposites (in collaboration with industrial partner DYO). He has published more than 80 peer-reviewed research articles in major scientific journals and conferences, presented more than 80 invited lectures and seminars around the world, and has more than 10 patents at various stages of the process.

Dr Demir won 2007 ESF-EURYI Award (European Science Foundation European Young Investigator Award). He also received the 2006 TUBA-GEBIP Award (Turkish National Academy of Sciences Distinguished Young Scientist Award). He was selected The Outstanding Young Person in the World (TOYP Honoree) of Junior Chamber International (JCI) Federation of Young Leaders and Entrepreneurs Worldwide in 2007 in the category of academic achievement and leadership. Dr Demir was also the recipient of European Union Marie Curie fellowship.

For his research project, Dr Demir will be working on the development and demonstration of nanostructured white LEDs integrated with nanocrystal quantum dot emitters. These quantum dots will be utilised for their spectrally pure color to be carefully optically designed for high quality lighting. These LEDs will provide better photometric properties than the existing counterparts.



## Dr LOK Shee Mei

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Dr Lok Shee Mei was born in 1973 in Singapore and she is currently a faculty member at the Duke-NUS GMS, Singapore. At the age of 16, she enrolled in the diploma programme in Biotechnology at the Ngee Ann Polytechnic, Singapore. Through the course, she was deeply intrigued by the strategies used by the immune system to combat viral disease, and how viruses, in turn, evolve to counteract these strategies. Therefore, during her undergraduate studies in Queensland University of Technology, Australia, she chose to study subjects relevant to this constantly evolving battle such as genetic engineering, immunology and virology. She then joined the laboratory of Dr John Aaskov (Director, World Health Organization Collaborating Centre for Arbovirus Reference and Research) as an honours year student, and acquired knowledge on the development of diagnostic kits and vaccine. In his lab, she had identified epitopes on dengue virus 2 recognised by neutralising IgM monoclonal antibodies using competitive binding assays and sequencing of neutralisation escape mutants. She subsequently returned to Singapore to continue her Masters degree, under the co-supervision of Dr Mary Ng at the National University of Singapore and Dr Aaskov, where she characterised the neutralisation escape mutants and determined the steps at which viral infection was inhibited.

For her PhD degree, she chose to learn X-ray crystallography from Dr Swaminathan at the Institute of Molecular and Cell Biology, Singapore. Under his guidance, she solved three crystal structures of phospholipase A<sub>2</sub> isoenzymes. Geared with the knowledge of x-ray crystallography and virology, she wanted to use her newly acquired techniques to continue her investigation on antibody binding and the mechanisms of dengue virus neutralisation. She then joined the Laboratory of Dr Michael Rossmann, Distinguished Hanley Professor at Purdue University, as a postdoctoral fellow in 2004. During this time, she was able to construct a pseudo-atomic model of antibody-mediated neutralisation of dengue virus. Specifically, this work showed that some neutralising antibodies could actually disrupt the quaternary structure of the virus before it had any chance of infecting the host cells. This provided the proof for a long suspected mechanism of virus neutralisation by antibodies.

For her proposed research, she intends to identify new therapeutics and investigate how they can neutralise dengue virus. In addition, she is also interested in the identification of cell and receptors used by dengue virus. The information generated from these studies will lead to improved strategies in countering dengue virus infection.



## Dr Naohiko YOSHIKAI

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Dr Naohiko Yoshikai was born in Tokyo, Japan, in 1978. He received his bachelor (2000), master (2002) and PhD (2005) degrees in chemistry at Department of Chemistry, University of Tokyo, under the guidance of Prof Eiichi Nakamura. His thesis was focused on the mechanism of synthetic organic transformations promoted by cooperation of multiple metal centres. He has made important contributions to the mechanistic understanding of organocopper-mediated C–C bond formation reactions and several synthetic transformations that are uniquely catalysed by dinuclear transition metal complex (e.g., Rh–Rh, Ru–Ru, Co–Rh). During these studies, he collaborated with Profs Jan-E Bäckvall (Stockholm), Iwao Ojima (SUNY Stony Brook) and Keiji Morokuma (Emory/Kyoto) to cultivate his expertise in experimental and theoretical aspects of homogeneous catalysis. He received Inoue Research Award for Young Scientists for the excellence of his thesis.

After completing his PhD, Dr Yoshikai was appointed as an Assistant Professor at the Department of Chemistry, University of Tokyo. Since then, he has explored new mechanistic and synthetic scopes of transition metal catalysis of nucleophilic organometallic reagents such as Grignard and organozinc reagents. He has thus far developed a nickel catalyst for highly efficient cross-coupling reaction through aromatic C–F bond activation, and the first iron catalyst that allows directed arylation of aromatic C–H bond activation. For these achievements, he recently received Chemistry Innovation UT Global COE Lectureship (Activation of Unreactive Carbon–Halogen and Carbon–Hydrogen Bonds by Transition Metal Catalysis of Nucleophilic Organometallics) and Research Proposal Award of Society of Synthetic Organic Chemistry of Japan from Takasago International Co. (Development of Cross-Coupling Catalysts Based on Design of Novel Multidentate Ligands).

Dr Yoshikai's research primarily aims at the development of novel homogeneous catalysis for direct conversion of ubiquitous but unreactive C–H bonds into C–C bonds in a cost-effective and environmentally benign fashion. To this end, he will explore novel organometallic catalysis using iron, which is among the most abundant and least toxic transition metal. Another characteristic aspect of his research is the integration of theoretical and experimental approaches, which he believes to be one of the most important new directions in the homogeneous catalysis research. To demonstrate this idea, he will focus on rational design and development of highly efficient and selective catalytic process that features synergistic effect of transition metal and main group metal centres through the interplay of computation and experiments.



## Dr TANG Chuanbing

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Dr Tang Chuanbing was born in Anqing, China. Influenced by his high school chemistry teacher, he went to Nanjing University to major in Polymer Science and Engineering. He was initially fascinated by polymer physics and worked with Prof Chen Rongshi in the area of single polymer chain conformation. He was awarded the Guanghua Prize for excellence in the programme. After graduation, he worked as a research engineer to gain experience in applied research for a few years to develop high performance polymeric latex and coating.

In 2001, he moved to the US and pursued a graduate programme in the Department of Chemistry at Carnegie Mellon University, where he worked with Prof Krzysztof Matyjaszewski and Prof Tomasz Kowalewski. His PhD work focused on the development of well-defined polymeric materials with controlled architectures by living radical polymerisation, especially atom transfer radical polymerisation. His work made important contributions in establishing a broad spectrum of polyacrylonitrile based functional materials. He also made a ground-breaking discovery in preparing nanostructured carbon materials from soft condensed materials. This work demonstrated a novel templating strategy to prepare carbon materials at nanoscale by pyrolysis of block copolymers.

During his postdoctoral career in the Materials Research Laboratory at University of California Santa Barbara, Dr Tang was interested in utilising block copolymer nanolithography for nanoelectronics application. Working in the laboratories of Prof Edward Kramer and Prof Craig Hawker, he developed a modular and hierarchical self-assembly strategy, combining supramolecular assembly with controlled phase separation of diblock copolymers, for the generation of long-range ordered nanoscale square patterns. These square arrays would enable simplified addressability and circuit interconnection in integrated circuit manufacturing and nanotechnology.

Dr Tang's academic achievements have gained international recognition. He won several prestigious awards such as the Chinese Government Award for Outstanding Students Abroad; American Chemical Society Pittsburgh Section Student Award in Polymer; and American Chemical Society R A Glenn Award Finalist. His work was published in more than 20 papers in top journals such as Science, Journal of American Chemical Society, Angewandte Chemie, Advanced Materials and Macromolecules. These papers have been cited more than 350 times in the last five years. His future research interest would be working on thin film nanoengineering of functional polymers towards applications for photovoltaics and nanoelectronics.



## Dr Hongyan WANG

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Dr Hongyan Wang has a Bachelor's degree from the School of Biotechnology in the East China University of Science and Technology, Shanghai, China. She joined Temasek Life Sciences Laboratory as a PhD candidate in 1998. She received her PhD from the National University of Singapore in 2004, where she was awarded the Chua Toh Hua Memorial Gold Medal. She later joined Prof William Chia's laboratory and worked as a postdoctoral Research Fellow for four years. She was a visiting scholar on a one-year postdoctoral training stint at the University of California, San Francisco from 2006 to 2007. A few months after her return to Singapore from the US, she accepted a position as an Assistant Professor at the Duke-NUS Graduate Medical School Singapore in their Programme in Neuroscience and Behavioral Disorders. Dr Wang has served on the faculty at the Duke-NUS Graduate Medical School Singapore since November 2007. She was also appointed to the faculty of the NUS Graduate School for Integrative Sciences and Engineering (NGS) in 2008.

Dr Wang's area of work is in neuroscience and cancer biology. Her research interest has been in understanding the mechanism of how neural stem cells control their proliferation and how brain tumor suppressors regulate the division of neural stem cells to inhibit excess self-renewal of neural stem cells. During her postdoctoral research, she was involved in establishing fruit fly *Drosophila* larval brain neuroblasts, neural stem cells, as a novel model for the study of stem cells self-renewal and tumorigenesis. Dr Wang's achievements have gained international recognition amongst her peers. Her work has been published in top international journals such as Nature, Nature Cell Biology, Genes and Development, and the Journal of Cell Biology.

In her lab at Duke-NUS, she continues to focus on understanding novel mechanisms of neural stem cell self-renewal by identifying and studying novel brain tumor suppressors in *Drosophila* and revealing their molecular mechanisms in division of neural stem cells. Dr Wang is also collaborating with clinician-scientists Drs Carol Tang and Christopher Ang Beng Ti from Duke-NUS and The National Neuroscience Institute (NNI) to examine human counterparts of several key molecules in *Drosophila* which she discovered, including brain tumor suppressors. Their data indicate an exciting correlation in *Drosophila* and human brain tumor formation, suggesting that molecular mechanisms discovered in *Drosophila* may apply to humans. This work has the potential to contribute greatly to the development of more efficient treatment of brain tumors in humans.



## Dr Qihua XIONG

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Dr Qihua Xiong attended Wuhan University and finished his BS degree in Physics in 1997. He was then admitted to the Institute of Applied Physics, Chinese Academy of Sciences with the national graduate student entrance examination exempted, due to his academic excellence.

After obtained his MS diploma in physics in 2000, he went to US to pursue his PhD research. In 2006, he received his PhD degree in materials science at the Pennsylvania State University under the supervision of Prof Peter Eklund. Dr Xiong is currently a postdoctoral research fellow in the laboratory of Prof Charles Lieber at Harvard University.

During his graduate study in Shanghai, he was fascinated by the breakthroughs in nanotechnology in the late 1990s. He decided to dedicate his passion to the fascinating field of “nano”, and encountered several mentors in his journey. In Prof Peter Eklund’s group, Dr Xiong focused on the fundamental physical properties, especially phonon properties of semiconductor nanowires. His research illustrated how nanowire size, shape, surrounding dielectric media and the interaction of light with matter affect the properties of phonons in nanowires. He also investigated the mechanical properties at nanoscale and discovered a new type of nanowire heterostructures – twinning superlattices. After he finished his PhD in 2006, he was offered a postdoctoral position by Prof Charles Lieber, a pioneer in the field of nanoscience and nanotechnology. During his postdoctoral training, he extended his research and expanded his horizon to include high mobility, high performance complementary nanoelectronic devices and nanoelectronic devices for single molecule biosensing, which represents the emergent field of nanobiotechnology.

Dr Xiong received several prestigious awards and fellowships during his graduate and undergraduate studies, including Pan-American Advanced Studies Institute (PASI) fellowship (DOE and NSF, 2006), Graduate Award for Academic Excellence (The Pennsylvania State University, 2006), Excellent Graduate Fellowship Award (1998 and 1999, CAS), Hui Kai Fellowship Award (Wuhan University, 1996), Gui Zhiting-Xu Hailan Fellowship Award (Wuhan University, 1995) and Outstanding Student Award (Wuhan University, 1994).

## **ANNEX 4**

### **NRF Research Fellows (2008)**

<b>S/N</b>	<b>Research Fellow</b>	<b>Research Topic</b>	<b>Host institution</b>
1.	Dr Eugene Makeyev	Understanding molecular mechanisms of post-transcriptional control in neuronal differentiation: a link between microRNAs, alternative pre-mRNA splicing and mRNA quality control	NTU
2.	Dr Hong Soon Hyeok	Aqueous [2+2+2] Cyclotrimerization of Alkynes as a more versatile "click" reaction	NTU
3.	Dr Christos Panagopoulos	Novel Quantum phases on the border of Magnetism	NTU
4.	Dr Zhou Jianrong	Asymmetric catalytic [4+1] Cycloadditions between Dienes and Carbene Precursors	NTU
5.	Dr Gijbert Grotenbreg	Conditional ligands for class 1 MHC products; application to epitope discovery for Dengue and respiratory syncytial virus-specific CD8+ T-cells	NUS
6.	Dr He Yingxin	Morphological and molecular characterization of a bi-lobed structure required for organelle biogenesis and cytokinesis in <i>Trypanosoma brucei</i>	NUS
7.	Dr Barbaros Ozyilmaz	Phase coherent charge and spin transport in nanostructured Graphene and ferromagnet hybrid devices	NUS
8.	Dr Yeo Yee Chia	Strain engineering for next-generation semi-conductor manufacturing	NUS
9.	Dr Jose Dinenny	Dissecting transcriptional networks controlling cell-type specific responses to salt stress in the root of <i>Arabidopsis</i>	TLL