Winner of The Inaugural Nanyang Award for Research and Innovation - Assoc Prof Sun Changqing

The Nanyang Awards are given in recognition and celebration of the outstanding achievements and contributions of faculty, staff and students. One of the awards is The Nanyang Award for Research and Innovation. This award is to give the highest recognition to individuals and teams who have made outstanding contributions in scientific knowledge through research breakthrough, and significant innovations on the world stage. E3 World catch up with the winner of the Inaugural Nanyang Award for Research and Innovation, Assoc Prof Sun Changqing.

Congratulations on winning the Nanyang Award and the elected Fellowship in Physics!
How does winning the awards make you feel?
I am happy and also feel stressed about the recognitions. They are not only honours for what I have achieved in the past but also a new milestone for my future endeavors. I would like to thank all colleagues and the authorities in the division and the school for the encouragement and support as well as my students for contribution.

What is the major contribution that has led you to the recognitions?
I have developed two theories for interatomic bond formation and bond relaxation in low-dimensional systems and used them quite successfully in designing processes and materials for devices. One of the theories is regarding the understanding of adsorbed-induced electron polarization, electron transport, and the bond forming kinetics. The other is for the atomic coordination deficiency induced electron and energy densification and localization in the surface skins and nanostructures. I enjoyed the process of achieving more than the results achieved. It was really exciting when I firstly observed the discrete stages of bond forming kinetics with the theoretical and experimental tools developed. According to the recent Editorial note of SPIE (International Society for Optical Engineering) magazine in the September 2005 issue, it could be said that I am the first person who has been unifying the tunability of nanostructures and their interdependence in a predicative way. What I have done just scratched the surface of the fields opened. There are plenty of room for further exploration. I am confident that further synergetic efforts could lead to greater achievement that is even more interesting and rewarding.

How could one excel in his research in your opinion?
In short, foundation, orientation, determination, and dedication could be key factors. I think, for original, quality, and productive research. Firstly, it is important to make best use of our strength, knowledge, and skills and find our own direction and approaches. Active and independent thinking is most important. Although, we respect convention and the scientific authorities, we should not be superstitious. Breakthrough in seeking for scientific truth could not be made if we are constrained within the existing frames or follow the crowd. Secondly, there is no shortcut for achievement. We must proceed step by step. Without 5-10 years or even a longer time, one could hardly achieve breakthrough in his areas. Lastly, self-esteem and self-confidence are also important. One should persevere without being distracted by any obstacles if he has set up his goal and direction. This is my humble opinion.

Does research conflict with education?
How to deal with it?
No, research and education should enhance each other, instead. It is very much enjoyable to share your knowledge and your ways of scientific thinking with young generations. You will win respect from students peers if you convey them stimulating, thoughtful and resourceful ideas. In turn, you can be inspired by students with new ideas to incorporate into your research. Respect from students and acclaim from peers in your areas of research would be the highest awards.