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## Nobel Laureate in Chemistry Prof William E Moerner Shares Insights on the Development of Super-resolution Microscopy at HKUST 25th Anniversary Distinguished Speakers Series

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The Hong Kong University of Science and Technology (HKUST) hosted the 25th Anniversary Distinguished Speakers Series on 16 May, featuring Prof William E Moerner, Nobel Laureate in Chemistry 2014. The event was well received by students, faculty members and guests from HKUST.

In his talk titled "The Story of Single Molecules: How Precise High-resolution Spectroscopy at Low Temperatures Led to Super-resolution Microscopy and Beyond", Prof Moerner shared with the audience today's development of super-resolution microscopy since the 1980s when the first optical detection and spectroscopy of a single molecule in the condensed phase was observed.

"Super-resolution microscopy has opened up a new frontier in which biological structures can be observed in fixed and live cells with resolutions down to 20-40 nm and below. Importantly, in spite of the current focus on super-resolution, even in the "conventional" low concentration, single-molecule tracking regime where the motions of individual biomolecules are recorded rather than the shapes of extended structures, much can still be learned about biology," Prof Moerner said.

Prof Moerner is the Harry S. Mosher Professor of Chemistry, Professor of Applied Physics and Chair of the Department of Chemistry at Stanford University. He conducts research in physical chemistry and chemical physics of single molecules, single-molecule biophysics, super-resolution imaging and tracking in cells, and trapping of single molecules in solution. His interests extend from methods of precise quantitation of single-molecule properties, to strategies for three-dimensional imaging and tracking of single molecules, to applications of single-molecule measurements to understand biological processes in cells, to observations of the photodynamics of single photosynthetic proteins and enzymes.

Prof Moerner has been elected Fellow or Member of the National Academy of Sciences, American Association for the Advancement of Science, American Physical Society, and Optical Society. He has received major awards including the Earle K Plyler Prize for Molecular Spectroscopy and Dynamics, the Irving Langmuir Prize in Chemical Physics, the Pittsburgh Spectroscopy Award, the Peter Debye Award in Physical Chemistry, the Wolf Prize in Chemistry, and the 2014 Nobel Prize in Chemistry.

Distinguished speakers including Nobel Prize winners, corporate leaders, entrepreneurs and key financial policy shapers were invited to speak at the HKUST 25th Anniversary Distinguished Speakers Series. Prof Steven Chu, Nobel Laureate in Physics in 1997 and former US Secretary of Energy, was invited as the inaugural speaker of the series. Other speakers include Mr Jean-Pascal Tricoire, Chairman and Chief Executive Officer of Schneider Electric; Mr Wang Shi, Founder and Chairman of China Vanke; Prof Dan Shechtman, Nobel Laureate in Chemistry in 2011; Prof Zhong Lin Wang, Hightower Chair in Materials Science and Engineering and Regents' Professor at Georgia Institute of Technology; Dr Raghuram G Rajan, Governor of the Reserve Bank of India; Mr Pinky Lai, Founder and Design Director of Brainchild Design Group and Brainchild Design Consultants; Dr Qi Lu, Executive Vice President of Microsoft's Applications and Services Group; Prof Andrew Chi-Chih Yao, Turing Prize winner; Prof Alan J Heeger, Nobel Laureate in Chemistry 2000; Dr Eric Betzig, Nobel Laureate in Chemistry 2014; Prof Emmanuelle Charpentier, inventor of a transformative genome engineering technology CRISPR-Cas9, and Prof Niall Ferguson, Laurence A. Tisch Professor of History at Harvard University. More talks are also being lined up.

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