An Interview with Prof. Flemming Besenbacher: Pioneer in Sino-Danish Scientific Cooperation

By XIN Ling (Staff Reporter)

Prof. Flemming Besenbacher.

At a special ceremony held in Beijing on January 18, 2012, the first Scandinavian received the Award for International Scientific Cooperation from the Chinese Academy of Sciences (CAS). He is Prof. Flemming Besenbacher, one of the most influential researchers in Denmark and a leading nanoscientist in the world. From taking on the first Chinese doctoral student from the CAS Institute of Chemistry in the early 1990s to successfully advocating the launch of a Sino-Danish education center in 2011, Prof. Besenbacher has greatly accelerated the collaboration between his group and CAS, and pushed Sino-Danish scientific cooperation to an unprecedented high level. Below is an interview between the professor and *BCAS* reporter Linda.

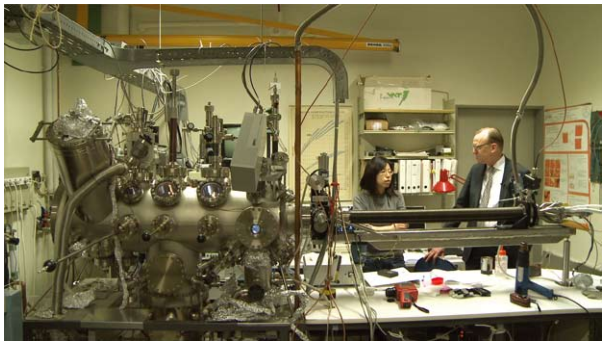
BCAS: For years you've been strongly involved in nurturing scientific cooperation between Denmark and China. How do you see the importance for the two nations to join hands to address such an emerging but key scientific realm as nanoscience? Please give a general review of your collaboration with CAS institutes and CAS colleagues.

Prof. Besenbacher: Both China and Denmark have national programmes funding nanoscience research so both countries benefit from working together in joint projects. By collaborating, we can learn a lot from each other even though we come from totally different cultural backgrounds.

In my experience, the level of scientific expertise at CAS institutes and top-ranking universities such as Peking and Tsinghua is extremely high. This is really my main motivation for seeking collaboration with Chinese partners. The CAS system is fantastic at promoting excellence by only employing the very best researchers and ensuring sufficient funds for running successful research programmes.

My friendship with Prof. BAI Chunli dates back to the beginning of the 1990s. It has been a joy to follow his scientific career, which includes the construction of the very first AFM in China and numerous novel applications of scanning probe microscopies, which have moved the field internationally. Prof. Bai Chunli has had a huge impact on pushing nanoscience and nanotechnology forward in China, and I am extremely happy that he has now been appointed to one the most influential positions in CAS, as President of CAS.

Today I am an Honorary Professor at the CAS institute of Chemistry in Beijing; I have received the prestigious Einstein professorship at CAS. Since 2009 we have had a joint Sino-Danish center on self-assembly of molecular nanostructures at surfaces and interfaces, between the Interdisciplinary Nanoscience Center (iNANO) at Aarhus University and the National Nanoscience Center in Beijing headed by Prof. WANG Chen, Peking University



Prof. Besenbacher discussing experiments at the Ultra-High Vacuum Scanning Tunneling Microscopy laboratory with postdoc WEI Yinying.

and Tsinghua University. This joint Sino-Danish Center is funded by the Danish National Research Foundation, and the National Natural Research Foundation of China and I highly appreciate the very fruitful and productive collaboration and the exchange of PhD students, post docs and senior scientists within our Sino-Danish center.

BCAS: So what do you think is the key to a successful cooperation between the two?

Prof. Besenbacher: Very good personal relations, friendship and mutual trust; it is that simple. Only through mutual trust and frequent communication can we hope to run successful projects between researchers from the two countries. I have chosen our Chinese partners due to their excellent international scientific standing and achievements, and I see very fruitful synergy with our Sino-Danish Research Center.

BCAS: You founded iNANO in 2002. Under your leadership, it is now one of Denmark's largest research centers and a role model for interdisciplinary research and education center in the world. What do you think are the main factors for iNANO's success, especially in innovation-based capacity building and cultivating and attracting outstanding researchers?

Prof. Besenbacher: In a general sense, I try to attract the best students, post docs and senior scientists and work to create the best possible framework conditions for the iNANO scientists. In my opinion, this means focusing on the best PEOPLE and the best INFRASTRUCTURE. From the outset, I have focused on hiring the best people and afterwards mentoring them throughout their career. I have spent a lot of effort on building up a strong research infrastructure so that our researchers have access to the very best instruments for their experiments.

BCAS: At the beginning of 2012 you took office as the new Chairman of Carlsberg Foundation. What is your plan for further cooperation with CAS and other research organizations and universities in China?

Prof. Besenbacher: I will continue my work at iNANO, now no longer as director but as a university professor within the field of surface science and I will be member of the iNANO Board. I will continue my collaboration with CAS institutes, especially the National Center for Nanoscience and Technology, on the subject of molecular self-assembly.

Furthermore, I have already been the Chairman of the Carlsberg Laboratory for some years. The Carlsberg Laboratory is a unique institution dating back to 1875 and is famous for isolating the first yeast monoculture, defining the pH scale, and many other scientific breakthroughs. In my capacity as Chairman, I intend to initiate collaboration between the Carlsberg Laboratory and CAS institutes on subject areas related to brewing processes. For example, I have extended an invitation to CAS researchers to visit the Carlsberg Laboratory for an extended period of time.

From March 22nd I will also be Chairman of the Board of Trustees of the Carlsberg Brewery and as such I will work hard to strengthen Carlsberg's already very strong platform in China. Carlsberg is a fantastic company with a unique heritage and an international brand. The Carlsberg Company builds on a more than 160-year history with a unique interplay between science and business.

I am truly impressed by the development of the new China within the last 25 years. Especially the investment in people, in infrastructure and investment in education, research and innovation as an investment in the future of China is to be praised, and I see more scientists showing "Scientific Social Responsibility", in the sense that when defining new research projects they try in their mindsets to see whether they can contribute to the solving of the many Grand Challenges of mankind: clean drinking water, sufficient amount of clean energy, cleaning up the environment, and creating affordable healthcare for a rapidly growing population on the globe. In the future I will when I go out for dinner discuss these issues with my many good Chinese friends and say "This calls for a Carlsberg".