

Introductory Comment at the “**Neurological
Science Collaborative Symposium**” between
Academia Sinica and NCKU

中央研究院與成功大學醫學中心
神經科學交流研討會

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Vice President Andrew H.-J. Wang (王惠鈞 副院長), Dean Charles Lin of NCKU College of Medicine (成大醫學院 林其和院長,) Dr. Cheng-Ting Chien of Academia Sinica (中央研究院 簡正鼎研究員,) distinguished participants from AS and NCKU, ladies and gentlemen:

I am particularly honored to represent my boss Michael Lai (賴明昭,) President of NCKU (成功大學) to say a few words of welcome to this “**Neurological Science Collaborative Symposium**” between Academia Sinica and NCKU (中央研究院與成功大學醫學中心 神經科學交流研討會.) This Symposium is a momentous occasion for both institutions. After all, the brain, as some would call it, is mankind’s most scientifically challenge organ in the 21st century.

Ladies and Gentlemen, ever since as a young boy, I learned a Cantonese derogatory term 繃線 describing someone who cannot do things right. It is pronounced as “*chee shin*” or something like that. It is the equivalent of the English phrase “*someone with a loose screw in his/her head.*” Sadly, this tells me that a significant component in our modern society, these are phrases that subconsciously remind us that “brain dysfunction” is regarded as unacceptable, even ugly, human behavior. Even though in the past several decades, scientific understanding of the brain has come a long way, to ask society to accept dysfunction of the brain as a disease that needs medical

treatment remains a social struggle.

In fact, I learn from our Professor Ming-Chyi Pai (白明奇) that only a small percentage of patients in the southern part of Taiwan receive medical treatment for Alzheimer disease.

Hence, while neurological science research is scientifically challenging, it is also clinically, hence socially, challenging.

With the above preamble in mind, I think a true and sustainable collaboration between NPAS (Neuroscience Program in Academia Sinica) and NCKU's Medical Center (including our ever expanding affiliated hospital,) which I have no doubt will be the case, makes infinite sense. I foresee that with neurological science collaboration as the underpinning between Academia Sinica and NCKU, it will undoubtedly spark cross-disciplinary collaborations, in science, engineering, even social sciences and humanities. In fact, just recently, NCKU has been awarded by the National Science Council a new fMRI facility designed primarily to study the brain. This would induce "spin-off" research in physics, chemistry, image processing and even mathematics. For example, in NCKU we just had one of the world's best mathematicians, Professor Shing-Tong Yau (丘成桐) gave a brilliant talk about the utilization of *Riemannian Geometry in Image Processing*. The problem is not only highly non-trivial, it is highly intellectually exciting. I anticipate that with AS and NCKU working hand-in-hand, and drawing in more and more scientists, engineers, social scientists and so on even beyond the boundaries of both institutions into the fold, there is possibility that real breakthroughs in neuroscience can be achieved!

With Vice President Andy Wang who spoke today so enthusiastically about this collaboration, I would be remiss if I did not take this opportunity to once again reiterate President Lai's enthusiasm of a major and long term collaboration between AS and NCKU and what it could mean to Taiwan.

As a theoretical physicist, I have a model in mind.

Many years ago, I was closely linked to the two major universities in Tennessee, the University of Tennessee in Knoxville (UTK) and Vanderbilt

University in Nashville (VU.) I was also a consultant to Oak Ridge National Laboratory (ORNL,) which is right in between Knoxville and Nashville. I saw first hand how fundamentally important intellectually it was for ORNL to interact with the two neighboring universities. Vice versa was equally true. In fact, in recent years, as ORNL is making the transition from being a weapons laboratory to a scientific laboratory, this mutual win-win situation is even more transparent. For example, the Spallation Neutron Source (SNS,) which costs more than \$1 Billion U.S. to construct, and the world's fastest supercomputer Jaguar-CRAY XT5-HE could not and would not exist in UTK and VU (or any other university, for that matter.) In the 21st century, no single university could afford such super expensive facilities any more, yet without them, deeper and broader problems may be out-of-reach. Thus by combining the faculty and students from these two universities, with the new cadre of scientists in ORNL, and "sucking in" other universities across the land, and leveraging the functionality of these powerful facilities, there is great anticipation that new scientific horizons can be tackled. This is indeed a new paradigm of scientific collaboration.

We probably can agree that in the United States, the closest approximation of Academia Sinica would be the national laboratories, such as ORNL. National laboratories, like AS, do not have students, especially graduate students, which we know is the bloodline of scientific research.

With this in mind, it is with great anticipation, that the present collaboration could induce NCKU to play the role of UTK and VU and AS as ORNL. If this roadmap could be achieved, President Lai and I, and all colleagues at NCKU are confident that the scientific future of Taiwan could enter into a new, unprecedented and breathtaking era.

We, and for sure I, will be most disappointed if that did not happen.

Thank you so much for your patience.