An acceptance speech given by Professor Arieh Warshel, BSc, MSc, PhD Nobel Laureate in Chemistry

It is an immense honour for me to deliver this address on behalf of, Dr Chan Shuk-leung, Dr Zhou Jianping, Mr Lee Chien, Mrs Lee Yick Hoi-lun Helen and myself. We are honoured by the conferment of honorary doctorates by The Chinese University of Hong Kong, and we are humbled by the significance of this illustrious recognition.

This is the fourth time this year that my wife Tamar and I have visited Hong Kong and, with each visit, we are more and more in awe of the majesty and beauty of this great city and its residents. With each successive visit, we are continually impressed by the strong spirit of exhilaration, and the tremendous power and impact of the academic, business and research communities. This enthusiasm makes accepting this honorary doctorate particularly special for me (and Tamar), and for my co-honourees of Dr Chan Shuk-leung, Dr Zhou Jianping, Mr Lee Chien and Mrs Lee Yick Hoi-lun Helen.

By conferring this distinction upon us, this University is acknowledging our individual contributions to science, all be it on very different frontiers. Each of us faced very different challenges to excel in our chosen fields, and each of us is extremely grateful for this great recognition.

Upon receiving this honour, and in recognition of Hong Kong's place in the global high-tech community, and the enormous drive of young people toward science, I would like to share with you a little story about my path to a Nobel Prize, and some of our direction in biophysics and biotechnology.

I started studying chemistry just by chance; right before I went to college. I was just finishing my time in the Israeli army, and I asked my friend what I should study. He said, 'chemistry.' I asked, 'Why?' he replied, 'because you have good vision.' At the time, he meant 'vision' in the simplest meaning of the word. That's because he wore glasses, and I did not. 'Chemists,' he said, 'should have sharp eyesight to see the colour of solutions in test tubes.'

I have discovered that, throughout my life, that conversation have taken on a greater meaning.

To be an innovative chemist, what matters more is that you are a *visionary*; not that you have good vision or can see colours in a test tube. I believe this applies to *every* discipline that requires problem-solving skills – *good vision*. You must have an ability, and the desire, to look beyond the obvious observation, and to be confident enough to imagine what is possible. I know this is true for other fields, like those championed by my fellow honourees here, today.

But this is not always easy – especially when your colleagues and mentors, keep insisting that what you *envision* doing, is impossible.

My research uses computers to model molecules; a practice that is commonplace now. But it was entirely cutting-edge in the 1960s when I started at the Weizmann Institute of Science in Israel.

The computers of that time were enormous in size, but much weaker than even the today's iPhone. Even back then, I *envisioned*, one day being able to use more powerful computers to model much larger molecules and enzymatic reactions.

Everyone around me – and in my field – told me, my ideas were *outlandish* and *absurd*. But I persisted. I conducted my research by designing more and more complex computer models. Now, my work, my vision, my *persistence*, has, and is, leading to new methods to predict the interactions between drugs and their proteins targets.

The basic chemistry my colleagues and I pioneered in the 1960s, today allows for molecular based pharmaceutical testing that is much more physically based than blind experimentation. But much more important research needs to be done.

Because disease-causing molecules, or pathogens, can change randomly leading to drug resistance. Thus, it is unclear to scientists what the next target for new pharmaceuticals should be. Now, through my work with computers, we are now able to start to simulate drug resistance on a molecular level, and create medications to which the pathogens will not easily adapt. We are also advancing our cell-modeling processes to understand the way faulty cells are failing in transferring signals for their action. We have also begun exploring ways to manipulate the transformation of signals in faulty cells to help us understand how to cure diseases.

Recently, I was extremely fortunate – and honoured – to have a new Institute – at CUHK (Shenzhen), named after me – the Arieh Warshel Institute of Computational Biology. I hope to advance biomedical simulations at this Institute, that will be beneficial to mankind, and contribute to strengthen the ties between this university and CUHK (Shenzhen).

Contributing to mankind – whether it be through science, the arts, or any number of other worthy human endeavours, is what motivates many of us – including of course, *we* honourees here today.

Of course, key to the development of a visionary outlook, is the role of academic institutions, and the support for such a role is a key to advance our civilisation. To do so is to develop an understanding of, and respect for, different views and different directions. This also requires the development of critical thinking, which allows one to study different ideas and philosophies, to examine them critically, and then to be able to navigate in a true direction.

Thank you for allowing me to share my story and philosophy with you today. On behalf of Dr Chan Shuk-leung, Dr Zhou Jianping, Mr Lee Chien, Mrs Lee Yick Hoi-lun Helen and myself, I would once again like to tell you how deeply honoured we recipients are to have this distinction conferred upon us.

I know I speak for my cohort when I say, *WE* wish CUHK a bright and illustrious today, tomorrow and the future!