Personal Statement

Three and half years ago, I was offered with a pre-admission to a key university only if I major at computer science. I accepted this admission, even though I planned to study physics, because I was so afraid that I would fail in the National College Entrance Examination. And now, on Sept. 14th, the counsellor told me that I was honoured with admission to some top universities if I continue to study computer science. However, this time, I turned down the offers, because I am not afraid of fail or unknown future any more. Over years, I've learned to be myself, to follow my heart - I like physics.

To me, the most amazing thing about physics is that one can inspect the world, from the finest particle to the eternal universe, only with a pencil and few papers. When I was a little child, I said to myself, someday I must become someone who possesses all the precious treasures - understanding the physical world. Childhood's dream is always beautiful, but vulnerable. I gave it up because of my fear.

The boring courses of computer sciences in college offered me with great amount of time to read many different books and my sealed interests were activated again. I went through all the CVs of faculty in physics department and wrote letters to professors who specialised in quantum physics or gravity - two topics that attract me a lot. Things were tough, but I was lucky that prof. Yapeng Hu was willing to give me a chance and he tutored me not only general theory of relativity but also the basic courses of physics. He gave me a paper only few weeks after we met and it was also my first time to read an scientific paper in English. I could never forget this paper. It was a review of dark matter and I had to stay up late and read it with a English dictionary in my hand since there were too many terminologies. It was pain, but, I did not give up because I was surprised by the brilliant ideas the scientists came up with to solve the "impossible" problems. Things became even better when I could understand most part of the papers regarding frontiers - the amazing connection between the gravity theory of space-time and the quantum field theory in its boundary, the bizarre thermodynamic relations of black holes (there are even phase transitions in black holes! And entropy production is really interesting, once we tried to figure it out with a model of drop but failed). Just mention the problems like source of inertia, Unruh Effect, and the bold assumption that black holes can be used as the CPU of quantum computer - I was totally dizzy in such a wonderful world. As a result, I could not focus on my major even for a minute.

After that, I read more papers, discuss with professors and other members in research groups. I attend seminars, and I wander in an amazing world. I also grasped every chance to study undergraduate courses in physics - I took online courses such as Classical Mechanics, Electricity and Magnetism, I studied Thermodynamics and Statistical Mechanics, General Relativity and Cosmology by myself and by discussing with prof. Hu, I audited courses like quantum mechanics (I met prof. Chenping Zhu in this course and later learned some very interesting topics like complex network from him), Advanced Algebra and Mathematic Methods in Physics, I took all possible physics courses I can register for like "General Physics" and "Introduction to Condensed Matter Physics". I have to work much harder than others as I still need to complete assignments in computer sciences, but I do not regret for the sake of finding the most enjoying way of life for myself.

Later on, I met prof. Juan Xu, who provided me with a chance to glance at quantum calculation and quantum information. This is the most unique subject I had ever learned, nothing is intuitive and all the circuits and algorithms have nothing in common with the traditional ones. Moreover, some of its aspects like information conservation, information entropy is even

connected with black holes! After that, prof. Xiaotao He, who specialised in nuclear physics, invited prof. Hu and me to join in her group so that we can work together on reconstruction of neutron star models, because Chandrasekhar limit is found to be slightly violated. We argue on which gravity theory should be considered, which nuclear model should be applied and how to simplify and interpret those complicated equations. I like to discuss with others since we can exchange ideas. These days are the most exciting days in my life, even though we did not find something breathtaking.

When I gave my privilege to graduate school in China up, prof. Hu said, "don't you think this is too risky? Applying for a graduate school can be very competitive, especially for you to change the major, and do you know how many students in physics department dream about free admission like that? You will not get many chances like this, be steady!" What he did not know is, when I was a sophomore, I was diagnosed "suspicious lymphoma (lymph cancer)", the agony during the whole week waiting for the pathologic results (of couse it came out to be negative) was unthinkable and this made me realise how short life can be and never waste a second on something I do not like. So, I answered, "One man's meat is another man's poison. Being myself is great!".

Admittedly, I lack the systematic training as I learned all physics knowledge by myself, by discussions, by auditing, by taking online courses, but I possess something one can never get from books - passion of physics, will of persistence and hard work.