诺奖大师清华受聘学子讨教全球变暖

本报记者 常丽君

9月12日上午，一如往日和谐静谧的清华园，迎来了两位世界著名科学家———一位是物理化学和分析化学家理查德·杰尔，另一位是2006年诺贝尔经济学奖获得者埃德蒙·菲尔普斯。他们应邀为清华大学师生作专场报告，同时将受聘为清华的荣誉教授。

清华大学东主楼一层的会议室，是菲尔普斯教授讲座的会场，记者在现场看到，可容纳500多人的大厅座无虚席，尚有许多来晚的同学没有座位，拥挤着站在后排和过道上，也不肯放过这次难得的与大师面对面的机会。

而二层的一间会议室，则是杰尔教授的报告现场。这个会场约有150多个座位，秩序井然。杰尔教授显得更加和蔼可亲。乐呵呵地接过了清华大学副校长谢维和颁发的荣誉教授聘任证书，一边为自己一下子得到这么多中国最优秀的学生向谢校长表示感谢，一边用眼光和场下学生打招呼。

随后，他出人意料地用一段幽默的卡通片，引出当天的话题：全球变暖之所见。他分析了目前全球变暖的形势，并提出减缓这一趋势的措施。台下同学们听得入神，掩不住脸上的凝思和兴奋的表情。杰尔教授话音刚落，立即有学生举起手来。第一个问题就是针对向大气中释放二氧化硫的。杰尔教授曾提出向大气中释放二氧化硫，可以作为屏蔽太阳光的一种方法。

“尊敬的杰尔教授，由于二氧化硫会被氧化为硫酸，使降水变酸，请问用二氧化硫气溶胶作为屏蔽来阻挡太阳光，是否会造成酸雨和其他一些气候的负面影响？”

杰尔教授马上说道：“这是个非常好的问题。我们知道二氧化硫会造成酸雨，但我们说的大气层是平流层，释放的二氧化硫全在高层大气中循环，不会轻易降落。而且排放的二氧化硫数量并不多，影响比较有限。总体上，我们所说的释放二氧化硫只是其中一种可能的解决方案。”

一位化学系博士生接着问：“有些专家认为人类即将进入下一个冰期，气候变暖是很正常现象，人类的活动并不能影响太多。您对这一观点有什么看法？”

“事实是这样的。”杰尔回答，“如果由于冰期的到来而认为我们的环境一切正常，那我们不需要有所作为。但我们应该尽量减少排放二氧化碳带来的不良影响，以推迟冰期的到来。”

“有学者提出在太阳和地球之间安置一把大伞，以降低传到地球的热量，这可行

吗？”一位穿红衣服的女生突然提出了一个超凡的设想，引得杰尔教授哈哈大笑，“噢，那样太贵了！不如用气球将二氧化硫放入大气高层呢……”

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随着互动的加深，杰尔教授边讲边作手势，还不时爆发出爽朗的笑声，台下也随之气氛高涨，举手发问的越来越多。

不知不觉，会议已经到了结束时间。仍有一些学生和媒体记者围在杰尔教授身旁，不舍离去。杰尔教授表示，他在北京、在清华过得非常愉快，同大学生们交流是一种乐趣。

后一篇

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DISTINGUISHED SCIENTISTS RECEIVED HONORARY PROFESSORSHIPS FROM TSINGHUA UNIVERSITY AND STUDENTS ASKED ABOUT GLOBAL WARMING

Science and Technology Daily Reported by Lijun Chang

On the morning of September 12th, the beautiful and tranquil Tsinghua University campus welcomed the visit of two world famous scientists - one of them is Richard Zare, a physical and analytical chemist, and the other is Edmund Phelps, the 2006 Nobel Laureate in Economics. They were invited to give lectures to the faculty and students in Tsinghua University, and would be awarded honorary professorships at the same time.

A conference room located on the first floor of Tsinghua East Main Building was made to the lecture hall for Professor Phelps' lecture. Our reporter saw that over 500 seats in the room were all filled and even the hall way was crowded by many later students. They did not want to miss this precious opportunity to talk with the distinguished scientist.

A conference room located on the second floor was made to the lecture hall for Professor Zare. This lecture hall has more than 150 seats, and the attendants were well organized. Professor Zare was very nice and friendly. With big smile, he accepted the certificate of honorary professorship from Weihe Xie, the vice president of Tsinghua University. He appreciated President Xie for letting him have these most excellent Chinese students in his lecture, while greeting the audience with eye contact.

In a surprise, he started his topic "My Thoughts on Global Warming" with a funny cartoon. He analyzed the current situation of global warming, and proposed solutions to slow down the trend. The students were totally impressed: while listening to the lecture, some were speculating, and some were having excited faces. They started to ask questions right after Professor Zare completed his speech. The first question was about introducing sulfur dioxide to the atmosphere because Professor Zare proposed this method to block sunlight.

"Dear Professor Zare, because sulfur dioxide will be oxidized to sulfuric acid, which acidifies rains, is it going to have negative climate outcomes such as acid rain while utilizing sulfur dioxide aerosol to block sunlight?"

Professor Zare answered immediately, "This is a very good question. We know that sulfur dioxide causes acid rain, but the atmosphere we mentioned is specifically stratosphere. All the sulfur dioxide circulates in the upper atmosphere, and will not precipitate easily. In general, the small amount of sulfur dioxide has very limited influence to the atmosphere. After all, introducing sulfur dioxide that we talked about is just one of the possible solutions."

A Ph.D. student from Chemistry Department continued to ask: "Some experts argue that we are going to enter another ice age, and warming is a normal phenomenon which cannot be significantly affected by human activities. What is your opinion on this point?"

"The fact is," Professor Zare answered, "If we think our environment is totally normal because

of the coming of an ice age, we do not need to take any action. But we should try our best to reduce the negative affects of carbon dioxide emission, to postpone the coming of the ice age."

"Some scholars proposed to install a big umbrella between the sun and the earth to decrease the heat coming to the earth. Is it possible?" A lady in red astonishingly proposed this extraordinary idea, which made Professor Zare laugh, "Oh, it's too expensive! Better to use balloons to introduce sulfur dioxide into the upper atmosphere."

As the discussion going deeper, Professor Zare was using gestures while talking, bursting to laugh happily sometimes. The audience was also excited. More and more people lifted hands to ask questions.

Time had been passing quickly. When the meeting time was over, there were still some students and reporters around Professor Zare for communication. Professor Zare said that he had a very happy time in Tsinghua University as well as in Beijing. He had a lot of fun communicating with students.