

Speech of
PROFESSOR STEVEN CHU
Co-Winner of the 1993 King Faisal International Prize
For SCIENCE (Physics)

Your Royal Highnesses,
Distinguished Guests,

It is a great honour to be in Riyadh today as the co-winner of the 1993 King Faisal International Prize for Science. I am honoured on a number of accounts.

It is pleasure to share this award with a friend and distinguished colleague, Professor Herbert Walther, whom I have admired for many years. His work in quantum optics, particularly his study of the interaction of single atoms with light are classic contributions to physics.

I am also honoured to be included in the illustrative company of present and past prize winners. A measure of the distinction of this prize is shown in the careful choice my fellow prize winners and the previous winners since its inception in 1979. The recipients of the King Faisal International Prize rank among the most distinguished scholars in the world. The fact that selection of these scholars is truly international in scope contributes to greater global understanding, cooperation, and mutual benefits.

I am grateful that the Selection Committee chose to recognize the importance of those areas in atomic physics and quantum optics, namely laser cooling and trapping of atoms and the spectroscopy of fundamental atoms, that I have been working in for over twenty years. Progress in these areas was made by a large number of excellent scientists also working in the fields, and this prize reflects their contributions as well.

My own contributions to physics were not made in isolation. I owe a debt of gratitude to my fellow collaborators, who have contributed so much to our collective effort. For my work with leptonic atoms, I want to thank Allen Mills who is the world leader in positron and positronium physics. I also want to acknowledge my colleagues at Bell Laboratories, Leo Hollberg, Alex Cable, and John Bjorkholm, for working with me during the initial laser cooling and trapping experiments, and Art Ashkin and Jim Gordon for many useful discussions. At Stanford, I have benefited greatly by having a truly superb group of graduate students and post-doctors. In particular, I want to acknowledge the work of my first crop of students, Mark Kasevich, David Weiss, and Mike Fee and my post-doctors Erling Riis and Kurt Gibble.

One of the criteria for this prize is that “nominees must have accomplished an outstanding academic work ... benefiting mankind and enriching human progress.” Often the work of physicist may seem esoteric and removed from the everyday experience. Happily, science frequently develops along completely unanticipated paths. When I look back on my research career, I see how the seemingly abstract concerns of atomic physics

have blossomed well beyond our dreams during those early days. We are now developing promising tools in physics, biochemistry and geophysics. It would be a source of great personal joy to see my work improve the human condition.

Thank you.