

## Interplay Between Experiment and Theory

Yuan-Tseh Lee

*Academia Sinica, Taiwan*

During the past 100 years, our understanding of chemistry has changed quite substantially. First, the laws of thermodynamics allowed us to elucidate, chemical equilibrium and chemical properties based on fundamental laws of nature. Then, the advances made early in the twentieth century in the understanding of the laws of mechanics governing the motion of microscopic particles, enabled us to explore molecular structures and chemical changes, solely based on quantum mechanics. However, because of the complexity of chemical system we are dealing with, neither theoretical investigation nor experimental pursuit alone have been shown to be adequate in advancing the basic understanding of chemistry. During the past fifty years, with the advancement of sophisticated experimental methods and high speed electronic computation, the interplay between experiment and theory has become more important and more fruitful.

In this lecture, my personal perspective as well as some examples will be given to illustrate the interplay between experiment and theory during the last forty years, especially in the field related to chemical dynamics. Some discussion will also be made on the important challenges human society is facing today for our survival on the surface of the earth.