



## 北京大学百年物理讲坛

*Centennial Physics Lectures at Peking University*

### Lecture 22

# Quest for Nature: Fifty Years of Discoveries in High Energy Physics

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University of Pittsburgh

时间：2019年4月25日（周四）下午14点

地点：北京大学物理学院西楼202会议室

### Abstract

For the past half a century, high energy physics has enjoyed the uninterrupted success of discoveries, signified by the recent discovery of the Higgs boson at the CERN Large Hadron Collider (LHC). Our understanding of the microscopic world has been deepened to a scale as short as  $10^{-9}$  nm. Yet there are still many outstanding questions to be answered. In this lecture, I will first review the historical discoveries in the past half a century, and then contemplate on the profound questions that still puzzle high energy physics world, especially those associated with the Higgs physics, including the nature of the electroweak phase transition, stability of the electroweak scale, the possible connection with dark matter, and the potential impact on the early universe cosmology. We argue that the collective efforts of future high energy physics programs, in particular the future colliders, hold great promise to uncover the laws of nature to a deeper level.

### Biography



Tao Han received his PhD from the University of Wisconsin in 1990. He was a Research Associate at Fermilab and a National SSC Fellow until 1993. He joined UC Davis as an Assistant Professor in 1993 and was promoted to Associate Professor II in 1997. In 1998, he returned to UW Madison, was promoted to Full Professor in 2001. In 2011, he relocated to the University of Pittsburgh and presently serves as the founding director of the Pittsburgh Particle Physics, Astrophysics and Cosmology Center (PITT PACC). He was named Distinguished Professor of High Energy Physics in 2014. He was elected a Fellow of APS in 2003 and a Fermilab Frontier Fellow in 2004. He is an elected general member of Aspen Center for Physics and CTEQ. He is now the Vice Chair of APS DPF, and the Chair-Elect for the APS April Meeting.

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