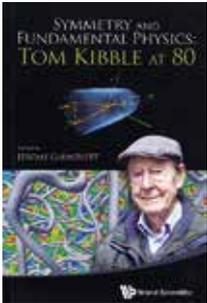


RECENSIONI



J. GAUNTLETT (EDITOR)

SYMMETRY AND FUNDAMENTAL PHYSICS: TOM KIBBLE AT 80

World Scientific, Singapore, 2014

pp. XI + 151; GBP 38.00

ISBN: 978-981-4583-01-5 (hardcover)

softcover: GBP 18.00

ISBN: 978-981-4583-85-5

e-book: GBP 14.00

ISBN: 978-981-4583-07-7

This book includes review articles reporting on talks given on the occasion of the Symposium held at the Imperial College on March 13, 2013 to celebrate of Kibble's 80th birthday.

The overall structure of the volume, edited by Jerome Gauntlett, is well-conceived as to capture and convey to a wide variety of audiences the fundamental long-range contributions given by Kibble. In my opinion this book represents a precious cross-disciplinary reference for both specialists in different fields as well as for graduate students willing to get acquainted with the challenging ideas of contemporary theoretical physics in about 130 pages.

The foreword and the three main contributions –briefly summarized below– are supplemented by a short biography and a complete list of publications and are interleaved with a few personal recollections in a pleasant way. The last contribution titled “Tom Kibble: Breaking Ground and Breaking Symmetries” by Steven Weinberg is a keynote presentation to a general audience of what can be looked at as the main achievement in Kibble's long scientific career. In Weinberg's words: “(in the first sixties) I was preoccupied with the spontaneous breakdown of symmetry principles (...); Tom and his colleagues' solution –namely the idea of connecting such

kind of breaking to mass generation– “played an essential part in the eventual unification of the weak and electromagnetic forces, and the formulation of what is now called the Standard Model of elementary particles, including the new particles discovered recently at CERN”. The underlying Englert-Brout-Higgs-Guralnik-Hagen-Kibble mechanism and the history of its discovery are nicely described by Kibble himself in a couple of freely available review papers, see *Scholarpedia* 4 (1): 6441 and 4 (1): 8741 (2009).

The inspiring cross-disciplinary character of Kibble's research is well illustrated in the three main chapters of the volume. Neil Turok gives a modern overview of cosmological theories with a focus on Kibble's pioneering work on how topological defects might have formed in the early universe during symmetry-breaking phase transitions. Adolfo del Campo and Wojciech Zurek survey analogous processes within the context of condensed matter systems (*cfr.* the Kibble-Zurek scaling phenomenon). Finally, Jim Virdee summarizes the epic and successful quest of finding the Higgs boson at the Large Hadron Collider at CERN.

A. Marzuoli
Università di Pavia