

Foreword

This book is the fourth in a series of lectures of the *Séminaire Poincaré*, which is directed towards a large audience of physicists and of mathematicians.

The goal of this seminar is to provide up-to-date information about general topics of great interest in physics. Both the theoretical and experimental aspects are covered, with some historical background. Inspired by the Bourbaki seminar in mathematics in its organization, hence nicknamed “Bourbaphi”, the Poincaré Seminar is held twice a year at the Institut Henri Poincaré in Paris, with contributions prepared in advance. Particular care is devoted to the pedagogical nature of the presentations so as to fulfill the goal of being readable by a large audience of scientists.

This volume contains the seventh such Seminar, held in 2005. It is devoted to Einstein’s 1905 papers and their legacy. After a presentation of Einstein’s epistemological approach to physics, and the genesis of special relativity, a centenary perspective is offered. The geometry of relativistic spacetime is explained in detail. Single photon experiments are presented, as a spectacular realization of Einstein’s light quanta hypothesis. A previously unpublished lecture by Einstein, which presents an illuminating point of view on statistical physics in 1910, at the dawn of quantum mechanics, is reproduced. The volume ends with an essay on the historical, physical and mathematical aspects of Brownian motion.

We hope that the publication of this series will serve the community of physicists and mathematicians at the graduate student or professional level.

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O. DARRIGOL : La genèse de la Relativité · 10h00
C. M. WILL : Tests of Special Relativity · 11h00
B. DUPLANTIER : Le mouvement brownien · 14h00
PH. GRANGIER : Expériences à un seul photon · 15h00
T. DAMOUR : Einstein épistémologue · 16h00



Einstein, 1905-2005

Séminaire Poincaré
Samedi 9 avril 2005

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