

Genealogy of Modern Physics

— From Einstein to Yukawa and Tomonaga —

Ken-Ichi Aoki *¹, Masako Bando*² and Mihoko Toya*³ [Ed.]

The research meeting titled “Genealogy of Modern Physics — From Einstein to Yukawa and Tomonaga —” was held on 7th and 8th of November, 2005 at Yukawa Institute.

The aim of the meeting is to learn from the pioneering physicists who have achieved great works in the field of fundamental physics, particle physics, field theory, nuclear physics, cosmophysics, fundamental statistical physics, non-equilibrium dynamics, biophysics, cosmic ray physics and so on. The speakers, including Y. Nambu, C. Hayashi, F. Oosawa, H. Tanaka, K. Kawasaki and other excellent physicists gave very impressive talks, which would not be attained without this organization. The year 2006 is named “the year of Yukawa and Tomonaga” in Japan and moreover the UNESCO decided to define the year 2007 “World Year of Yukawa”. On this occasion we would like to know why and how the pioneer people were able to establish many exciting findings on the structure of matter and fields, space and time. We tried to extract the reason why they did so many success in this far-east small county. This may give us hints on how and what we can do for the future understanding our Nature.

Each title with speaker is the followings,

1. Nuclear physics:
History of Cluster Model and its Development, K. Ikeda
Unified Understanding of Nucleus — from Light to Heavy Nucleus, S. Ohkubo
Quark Model and Nuclear Force, K. Yazaki
2. Cosmic Ray:
Cosmic Ray Physics and Neutrino Physics, J. Arafune
A Discovery of Charm Particles, K. Niu
3. Genealogy of Modern Physics:
Tracing my Research Life, Y. Nambu
4. Particle Cosmology:
Opening the Door of Universe, C. Hayashi
Spirit of Hayashi Laboratory, M. Sasaki
Problem of Baryon Numbers, M. Yoshimura
5. Statistical Physics and Non-equilibrium Statistics:
Field Theoretical Approach to Quantum Statistics, N. Kawakami
Hierarchy of Fluctuation - from Micro to Macro, K. Kawasaki
From Many Body System to Small Multi-body System, H. Hayakawa
6. Birth of Biophysics :
Exciting Life with Biophysics, F. Oosawa
7. Particle Physics and Field Theory:
Quick Review of String Theory and Vacuum Selection, T. Eguchi
Slowness of Development of Field Theory in Japan, T. Kugo
History of Constructive Field Theory, H. Ezawa
8. Structure of Nature:
Strata and View of Nature, H. Tanaka

*¹ Kanazawa University, Japan

*² Aichi University, Japan

*³ Kyoto University, Japan