

THE
GRAND UNIFICATION THEORY
— OF THE —
UNIVERSE

Recognizing the correct dimensional structure of the universe
allows us to understand all unsolved problems of the universe from
the quantum level to the void structure.

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THE UNPRECEDENTED ARTICLE :
THE UNIFIED THEORY OF THE UNIVERSE DIMENSIONS

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DEDICATION

This publication is a theory of universal properties for all of the human beings.

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I. HEADINGS

THIS THEORY IS THE ONLY THEORY OF EVERYTHING

- 1) The composition of our cosmos including the universe that was formed at the time of the Big Bang, the universe that will be formed in the future, and the multidimensional universe can be explained only by this theory, the superstring theory, and/or the M-theory.
- 2) The conventional dimension theories have become stuck due to the misinterpretation of the mathematical formulae.
- 3) The correct comprehension of the dimensions, i.e., only one coherent theoretical hypothesis, can explain the following unsolved issues:
 - Reasons why the natures of particles and waves are compatible;
 - Background that is present in the Grand Unified Theory of forces;
 - Theoretical reason why the time arrow is unidirectional;
 - Reasons why the numbers and generations of all fermions exist, with complete coherence with this theory like a fingerprint;
 - Background of the quantum chromodynamics;
 - Reasons why the numbers and generations of all bosons exist;
 - Prediction of the existence of unknown bosons including Madala boson and supersymmetry particles, which exceeds the Standard Model;
 - Reasons why particles have or do not have mass and why they differ—spacetime where the Higgs boson exists;
 - Background of the loop quantum gravity theory;
 - This theory includes the scalar field, the vector field, the tensor field, and the second rank tensor field;
 - Reasons why the antimatter universe and white hole are not discovered in our universe;
 - Points of view for the black hole spacetime that differ depending on the observation system;
 - Solutions of the problem why the absolute number of universe baryons is short;
 - Reasons why the spontaneous breaking of CPT symmetry occurs;

- Reasons why neutrinos oscillations occur inevitably;
 - Mechanisms of particle disintegration and pair generation/annihilation;
 - Verification of the theories using the Big Bang & inflation models;
 - Compatibility of quantum mechanics;
 - Consistency between the superstring/M theory (brane cosmology) and the present theory;
 - Major candidates of dark matter;
 - Identity of dark matter;
 - Integration of the dimensional theories; and
 - Any and all issues of the cosmos, ranging from the Planck to Universe scales
- 4) This theory does not require the arbitrary setting of parameters, the unreasonable renormalization of infinite terms, anthropic principle-based ideas, etc. Namely, this theory is completely compatible with other major theories of dimensions and is universal and perfectly symmetric.
- 5) “The Unified Theory of the Universe Dimensions” described in this book itself can be a principle of arithmetic algorithm of next generation that by far outstrips quantum computers because arithmetic elements for supercomputers are 0/1 binary bits while arithmetic elements for quantum computers are superimposable qubits; hence, only one type of quantum model can be generated even when n-fold qubits are available. However, superimposable qubits that are derived from this theory are potential arithmetic elements which most precisely simulate the events (e.g., cohesion-decay and pair production-annihilation) of the universe itself because they can postulate the numbers of types and generations of respective elementary particles. Based on the abovementioned argument, the theory should permit the simulation of any and all events of the universe.

PREFACE

In the history of natural sciences, there are the following representative theories of physical dimensions in addition to the mathematical theories of abstract dimensions:

1905: Einstein's special theory of relativity (the 4th dimension)

1916: Einstein's general theory of relativity (the 4th dimension)

1926: Kaluza-Klein theory (extra dimension theory)

1957: Extra dimension compactification theory (Calabi-Yau manifold)

1960s: Roger Penrose's twistor theory

1999: Lisa Randall (warped extra dimensions)

2003: Edward Witten (twistor string theory)

Superstring theory (e.g., ten dimensions, eleven dimensions, heterotic dimensions: 26 dimensions).

Taken as a whole, the kenning of physicists—especially about the dimensions—gives rise to tentative explanations when physicists presume or establish the models for a given solution is obtained by mathematical formulae. Hence, such models simply manifest the partial concepts of dimensions and differ one another in the interpretation of dimension or spacetime image. To date, any theory capable of providing the unified explanation of other physical phenomena has not existed. An attempt to condense all the facts of the universe only by elegant mathematical formulae will generate pitfalls where room for sorts of interpretations and errant image emerge. Regarding the method of expressing the cone, for example, mathematical formulae apart from figures and shapes give room for different interpretations. Especially concerning the dimensions of the universe that might be expressed as having 10 dimensions, the conventional theories have failed to encompass the actual situation and the entire image of the universe. Namely, the mathematical formulae themselves involve approach limitations.

1. Why are the Conventional Theories of Dimensions and Spacetime are Stuck?

Reasons why the conventional theories of dimensions and spacetime are stuck are the following:

- 1) The target dimensions are different between Einstein's theories of relativity (the 4th dimension) and quantum theories (the 10th dimension);
- 2) The majority of mathematicians and physicists have confused the ideas about the number of freedom degrees and the number of dimensions (even when the mathematical formulae have indicated the universe of "10 dimensions", nobody has been able to have concrete image of the dimensions.);
- 3) There is confusion about the relations between spacetime and its components, or errant ideation about the dimensions themselves;
- 4) There is discussion about the phenomena in different dimensions only based on the observations and calculations made in the 4th dimension;
- 5) Due to the notion perceived by most physicists that the 5th or greater dimensions are invisible, the "compactified dimension" theory capable of explaining only certain specified physical phenomena to make sense has prevailed;
- 6) Progress in specialty differentiation has allowed the publication of papers using the theories and/or mathematical formulae capable of some physical phenomena, but only partial concepts have been afforded with respect to the dimensions;
- 7) Reliance only on mathematical approaches has generated errant images of the dimensions shown by the mathematical formulae, and individual physicists have their particular interpretations; and
- 8) Humans can observe the physical phenomena (e.g., elementary particles and orbits), but not the dimensions themselves.

Surprisingly, any theory on the dimensions capable of comprehensively explaining all phenomena of the universe has not existed to date.

Namely, there is a need for a novel dimension theory that unifies the solutions which have been shown by the observation results from the physical phenomena and by the major mathematical formulae and equations.