

## Parallel Worlds - Parallels between modern Cosmology and Oriental Philosophy



### Short Communication

ISSN : 2456-1045 (Online)

(ICV-PHIL/Impact Value): 3.08

(GIF) Impact Factor: 2.174

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Journal Code: ARJMD/PHIL/V-19.0/I-1/C-3/NOV-2017

Category : COSMOLOGY & ORIENTAL PHILOSOPHY

Volume : 19.0 / Chapter- III / Issue -1 (NOBEMBER-2017)

Journal Website: [www.journalresearchijf.com](http://www.journalresearchijf.com)

Paper Received: 12.11.2017

Paper Accepted: 20.11.2017

Date of Publication: 05-12-2017

Page: 11-12



Name of the Author:

**Rattan Mann**

Asbratstien 15, 1251 Oslo. Norway

Email : [rattan.mann\[at\]gmail\[dot\]com](mailto:rattan.mann@gmail.com)

### Citation of the Article

**Mann R. (2017)** Parallel Worlds - Parallels between modern Cosmology and Oriental Philosophy ; Advance Research Journal of Multidisciplinary Discoveries.19.0,C-3(2017):11-12; available at : <http://www.journalresearchijf.com>

### ABSTRACT

Similarities between the modern concept of a Multiverse and ancient Eastern philosophies is explored.

It is about forty years since Gary Zukav in The Dancing Wu Li Masters, and especially Fritjof Capra in The Tao of Physics showed the similarities between modern physics and ancient Eastern philosophies, especially Buddhism.

Since then great strides have been made in particle physics and cosmology. But these very strides, especially in cosmology, have brought back the old conflict between science and Western religion. The new concepts that are foreign to the Western religion are the concepts of Multiverse, aka Multiple Universes or Parallel Worlds, and the birth of the Universe from Nothing (Vacuum) by quantum fluctuations (randomness, by chance). These two concepts go against the basic tenants of Western religion favouring a unique Universe.

In this article we show that there is no such conflict between these concepts of modern cosmology and ancient eastern philosophies and religion.

Let us begin with the two main characteristics of the Universe as we have begun to understand them now.

**I. EXISTENCE**

The Universe originated from the vacuum (nothing, empty space) via a quantum mechanical vacuum fluctuation (randomness arising from the Heisenberg Uncertainty relation). This statement was first made by Edward P. Tryon in the form of a question, “*Is the Universe a Vacuum Fluctuation?*” asked in his paper of 1973 in Nature.

**II. UNIQUENESS**

The Universe is not unique, as Western religions demand. There are multiple Universes. Thus the Universe is now regarded as a multiverse consisting of many, possibly infinite, number of Universes. Parallel Worlds is another name for Multiverse used by Michio Kaku in the title of his book Parallel Worlds.

Eastern philosophies, especially Mahayana Buddhism, have parallel concepts which correspond to these two concepts in a tantalizing manner.

**1) Formlessness led to Form (The Heart Sutra).**

This is as close as we can get to the modern statement, “*The Universe arose from the Vacuum (nothing)*”, seeing the difference in time, place, and the languages of the two statements.

Just as the simple vacuum (nothing, empty space) of classical physics has evolved into an elaborate concept of modern physics (A boiling, bubbling, frothing ocean of activity called vacuum), similarly the simple ‘Sunya’ (nothing, zero) of Buddha has evolved into a very elaborate theory of Sunyata (Nothingness) in the Mahayana Buddhism.

**2) One metaphor for the Multiverse is the Indra’s Net of Pearls.**

Indra’s Net is an infinite net (called a lattice or matrix in Physics) in the space of three dimensions. Thus in physics it will be called a 3-dimensional lattice or matrix. At each juncture (called a vertex or matrix element in physics) there is a pearl. These pearls may vary in size and are all connected with and reflected in each other, thus forming a network of pearls around pearls and also pearls within pearls. For a beautiful picture of Indra’s Net see <http://awakeningtoreality.blogspot.no/2009/04/net-of-indra.html>

Now we compare this picture and description with pictures and Descriptions of the Multiverse given by authors who have not considered Oriental ideas in their books at all.

a) Compare the above picture from the internet with the picture of the Multiverse on page 283 of “*Cosmology for the Curious*” by Perlov and Vilenkin [6]. If we interpret the pearls as Bubble Universes, these two pictures are almost identical. In fact, on the same page these authors use the term “bubbles within bubbles” as I have used the term “*pearls within pearls*”.

b) At the textual level I quote from “A Universe from Nothing” by Lawrence Krauss [4]:

“*Imagine an infinite number of universes stacked up above a single point in our space.*” (page 135).

This is exactly how Indra’s Pearls are stacked as the picture on the internet shows.

As I said before, none of the authors have considered any oriental ideas, yet their description of the Multiverse is identical to the Oriental concepts we have considered here. Finally, this article can be considered as a “research program” about the relation between modern physics and cosmology and Eastern thought in the following sense:

Both Capra and Zukav’s books were written “after the event”, that is, after quantum theory had become a mature field. Only after Heisenberg and Schrodinger had completed their theories, did they learn about the similarities of quantum mechanics to Eastern philosophies during their trips to Asia in the 1930’s.

Today the situation is different.

The concept of the Multiverse is new, and the various theories of the Multiverse are in a state of flux with frequent new ideas and changes. Like the two versions of quantum mechanics (matrix mechanics of Heisenberg and wave mechanics of Schrodinger), there are two versions of the Multiverse:

- i. The Multiverse of Inflationary cosmology (6, chapter 18).
- ii. The Multiverse of string theory (6, chapter 19).

So this is the right time to create a new dynamical (real-time) interaction between modern cosmology and Eastern philosophies. This requires a re-investigation and re-interpretation of Eastern philosophies, especially Buddhism, by modern Eastern philosophers in collaboration with modern Western cosmologists. There may be many hidden and so far undiscovered pearls in the seventeen volumes of the Heart Sutra which may bring to light new connections between Western science and Eastern philosophies.

This is a research program for the future, and the first dynamical (in real-time) interaction between Western science and Ancient Eastern philosophies.

The full Heart Sutra occupies 17 volumes, some of which have not yet been translated into English. It is in this goldmine that I expect new similarities with modern cosmology to be found. This hunt will have to be a vast collaborative effort in multi-disciplinary studies - what I have called a “*research program*” above.

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