

Research Article

Exploration one of the Modern Science form of Philosophy

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Abstract: In this study, we have a research of the exploration one of the modern science form of philosophy. Broad-spectrum philosophy is brought out to resolve the contradiction between the universality and accuracy of the philosophical proposition and non-procedural and procedural of philosophical method, which is constructed by dialectic structuralism and takes, generalized axiomatic, modeling, mathematics and procedures as its research methods, then build the scientific form the traditional philosophy. It has obtained a plenty of achievements in the field of the basic theoretical research and applied research since its establishment before 16 years ago.

Keywords: Broad-spectrum philosophy, future prospect, research status

INTRODUCTION

Broad-spectrum philosophy was formally proposed by Professor Zhang Yuxiang of North China Institute of Water Resources and Hydroelectric power (Zhang, 1998), for 16 years, Broad-spectrum philosophy has been achieved new progress and attracted increasingly concern by a number of experts and scholars. This essay would summary on the establishment, research status and future prospect of Broad-spectrum philosophy.

Zhang (1998) have a research of the exploration of broad-spectrum philosophy. Zhang (2006) have a research of the fundamental concepts, framework and application of broad-spectrum philosophy. Xu (2005) study the broad-spectrum philosophy and innovative thinking. Song (2002) gives a study of innovation of science and technology from broad-spectrum philosophy to scientific spirit. Zhang (2001) have a research of the broad-spectrum study on the basic problems of ideology. Gao (1999) analyze the broad-spectrum analysis on matter element. Zhou (2001) has a research of the new perspective of broad-spectrum philosophy on discrete mathematics. Zhang and Huang (2007) have a discussion of the water conservancy project green utilization of broad-spectrum philosophical basis. Jia (2008) study the rational utilization of water resources based on the broad-spectrum philosophy.

In this study, we have a research of the exploration one of the modern science form of philosophy. Broad-spectrum philosophy is brought out to resolve the contradiction between the universality and accuracy of the philosophical proposition and non-procedural and procedural of philosophical method, which is constructed by dialectic structuralism and takes, generalized axiomatic, modeling, mathematics and procedures as its research methods, then build the

scientific form the traditional philosophy. It has obtained a plenty of achievements in the field of the basic theoretical research and applied research since its establishment before 16 years ago.

THE ESTABLISHMENT OF BROADSPECTRUM PHILOSOPHY

Broad-spectrum philosophy is established to resolve two pairs of contradiction between the universality and accuracy of the philosophical proposition and non-procedural and procedural of philosophical method, which existed for a long time and it, was founded on the base of drawing up the results of system science and using the modern mathematics.

The contradiction between the universality and accuracy of the philosophical proposition means that the philosophical proposition has the highest universality, while it is hard to be exact, precise and this would easily lead to ambiguity and misunderstanding, which is one of the reasons why many philosophical propositions has been debated for a long time. Such as, the discussion on cognoscism and agnosticism, the division of one into two and more, the truth is unique or more in the history of philosophy. In fact, this kind of philosophical propositions can be found everywhere. Broad-spectrum philosophy takes use of axiomatic, modeling, mathematical method to solve the above problem.

The second contradiction of Broad-spectrum philosophy need resolve is the non-procedural and procedural of philosophical method. This contradiction means that traditional philosophy has no procedure. For example, the traditional philosophy stresses that "phenomenon reflects the essence and the essence decides the phenomenon and therefore we need get the essence through studying phenomenon". Traditional

philosophy does not only reveal how phenomena reflects the essence, what kind of phenomena is decided by essence, but also does not provide the procedure of "getting the essence through studying phenomenon". Broad-spectrum philosophy brings out the procedure of "getting the essence through studying phenomenon without loss of generality on the base of revealing the structure of generalized quantification of the relation between phenomenon and essence.

Obviously, it is not easy to solve these two contradictions; the core of the problem is to find the appropriate mathematical tools. The so-called appropriate means that the mathematics need be not dependent on quantitative relation, because philosophical problems do not generally involve quantitative relation. Therefore traditional Mathematics which is based on the quantitative relation (such as algebraic equations, trigonometry and calculus) cannot describe the philosophical problems. In addition, the suitability of this mathematics need be the wide, because fundamental characteristic of philosophy is the highest universality.

Zhang (1998) came into learn and systematic study of pan systems methodology. Just as its name implies, Pan System's methodology is suitable for extensive system, which popularizes the results of set theory, modern algebra and graph theory to the general system. And it is rightly solving the two pairs of contradictions, because it is not only dependent on quantitative relation, but also has the highest universality.

Professor Zhang Yuxiang officially took the Pan systems methodology as the modeling tool of philosophical problems (Zhang, 2006). From 1990 to 1995, Professor Zhang Yuxiang continuously published more than 20 papers, with emphasis on analysis, application of pan systems methodology to model for the philosophical questions. Based on these works, Professor Zhang Yuxiang published an article<on the conception of Broad-spectrum philosophy>in 1996, which marked Broad-spectrum philosophy was formally proposed. Dozens of authors has been published more than 100 articles and three in the domestic and foreign journals since 1996. And these academic papers and monographs reflected much creative work of Broad-spectrum philosophy. First, it establishes commensurate mathematical model for most of the philosophical concept of dialectical materialism. Here the so-called "commensuration" refers that the philosophical concept has the same universality with the model. Second, it establishes commensurate procedures for most methods of dialectical materialism. Third, it raises a lot of new concepts and methods. For example, the theorem of multivalent objectivity which describes things have multiple objectivity, concept of class change which

describes quantitative change and qualitative change (change of same class and different class), the concept of value field-network which describes the social value distribution and so on. In the method, Broad-spectrum philosophy puts forward a variety of connection analysis, generalized extreme value analysis method, system generalized partial derivative method, etc. Fourth, Broad-spectrum philosophy is applied in more than 10 fields, such as mathematics system, sciences, literature and art system, talent studies, law, management, science and technology philosophy, western philosophy, Chinese philosophy, the theory of socialism with Chinese characteristics, etc.

THE RESEARCH STATUS OF BROADSPECTRUM PHILOSOPHY

According to research results, more than 100 the papers and monographs can be divided into three classes of the basic theoretical research, applied research, theoretical evaluation.

Zhang (1998) is the main author of basic theory research (thesis, works) and the main contents of the research include basic concepts, main contents, theoretical characteristics, etc., of Broad-spectrum philosophy.

As for basic concepts of Broad-spectrum philosophy, (Zhang, 2006) thinks that the basic meaning of "broad spectrum" is "broad knowledge series", namely "universality", which reflects the fundamental characteristics of philosophy. He holds that true philosophy should bear the characteristic of "universality". The "Ideology Theory", "People Theory" (regard philosophy as anthroponomy), "Social Sciences Theory", etc., (regard philosophy as social science) popular in the academic circle are all lopsided, since they can not reflect the fundamental characteristics. Broad-spectrum philosophy concept is brought up in order to recover the proper universality of philosophy.

Zhang (2006) put forward that Broad-spectrum philosophy is based on constructional idea of dialectical structuralism. Dialectical structuralism is a heritage and transformation of traditional consequentialism with ideas of dialectical materialism, that is, it absorbs the reasonable core of structuralism (such as concepts of general structure, module combination method, etc.) and endows variability, transformability, observability and controllability, etc. Under the constructional idea of dialectical structuralism, all sorts of philosophy concepts, principles and methods are abstracted and broken down into different structural modules, then used to simulate various philosophical issues through the connection, combination or transformation of philosophical structural modules.

According to the analysis of Professor Zhang Yuxiang, the basic theory of Broad-spectrum philosophy is divided into six basic parts and they are Broad-spectrum ontology, Broad-spectrum connection theory, Broad-spectrum Yin and Yang theory, Broad-spectrum class-change theory, Broad-spectrum image theory, Broad-spectrum value theory.

Broad-spectrum ontology is the ontology of Broad-spectrum philosophy. It defines the concept of objective existence through introducing electability axiom and equivalences axiom and a series of important conclusions such as multivalent objectivity theorem can be deduced based on this. It also offers generalized quantitative models and corresponding programs of hidden existence (in correspondence with manifested existence), historical existence, future existence, infinite existence (in correspondence with finite existence) and other many special existence forms and it refutes many misconceptions of subjective and objective idealism with achievements of mathematical form.

Broad-spectrum connection theory is a kind of qualitative research of materialistic dialectics universal connection theory, which deduces many important conclusions of general system theory by way of introducing minimum connection axiom and the axiom of non-inherence and connects with relevant principles of modern science (modern physics, chemistry, etc.). Many connection analysis methods (macro connection analysis method, main connection analysis method, key connection analysis method, etc.) put forward in Broad-spectrum connection theory simulate many methods in concrete science with generalized quantitative programs.

Broad-spectrum Yin and Yang theory is a new theory about dialectical contradiction theory, which simulates dialectical contradiction concepts with Yin and Yang ordered pair that satisfy two abstract mathematics conditions, distinguishes two types of Yin and Yang with different characters-dynamic Yin and Yang and state Yin and Yang and describes their existence axiom. Broad-spectrum Yin and Yang theory is a theory about principal order Yin and Yang theory and class Yin and Yang theory, which completely describes principal contradiction theory and basic contradiction theory in materialistic dialectics with specific forms and the Yin and Yang control idea it put forward describes the nature of general control from dynamic mechanism.

Broad-spectrum class-change theory comes from dialectical structuralism research of quantitative change and qualitative change law. It uses same class-change (change in the same equivalent class) to simulate generalized quantitative change, uses different class-change (formation from one equivalent class to another equivalent class) to simulate generalized qualitative

change, deduces system class-change theorem by way of introducing the axiom of induction on environment parameter and quality-quantity connection axiom and deduces Yin and Yang class-change theorem through coupling quantitative change and qualitative change law and unity of opposites law. Generalized quantitative models on reversibility and no reversibility of the system evolution in Broad-spectrum class-change theory reveals the roots of the confrontation between cognoscibilism and agnosticism of epistemology, the generalized criterion on system stability and instability and observability and controllability theory on system class-change bear new reference meaning towards comprehending and studying general control theory in a broader meaning.

Broad-spectrum image theory is a research on dialectical materialism epistemology (dynamic theory of reflection) based on generalized image (showing as mapping in mathematics) concept. It puts forward many image models of dynamic reflection and builds a typical mapping (such as from individual to universal, from phenomenon to essence and other analogy transplantation of similar phenomenon) from phenomenon to essence through introducing phenomenon classification axiom and essence existence axiom, summarizes lots of practical results in scientific research in the extremely abstract generalized quantitative form as truth definition of equivalence image and criterion of truth. Its inverse image theory on cognition simulates the realization process from theory to practice in concrete way.

Broad-spectrum value theory is a kind of structuring and modeling research on philosophy value theory. It gives two mathematics conditions (homogeneity and non-empty conditions) of value realization through introducing generalized supply-demand relations (not limited to supply-demand relations of economics) and it builds models for opposite and dialectical value judgment with mapping power form of sing element set and analyzes their differences and transformation and it simulates all kinds of evaluation process through introducing general evaluation function. Broad-spectrum value theory also builds a value field-net model within certain social scope, especially offers the general regulation and control model of social value field net.

As for the research on application, there already are dozens of authors who have done serious exploration. Due to limited space, this study gives only a few representative viewpoints here. Xu (2005) applies multivalent objectivity theorem of Broad-spectrum philosophy to study the mechanism and methods of innovative thinking. He thinks: first, one conclusion could be reached according to multivalent objectivity

theorem: any truth cognition is connected with certain observe-control mode; therefore, changing observe-control mode is an important method to discover truth. Second, there are infinite observe-control modes, so there are infinite innovations. Third, as for the same study object, changing observe-control mode and adjusting observe-control level are the basic methods to produce divergent thinking.

Song (2002) applies the principles of Broad-spectrum to conduct systematic research on "truth-seeking" spirit of "scientific spirit", "skeptical spirit" and technological innovation methods. He thinks that the concept (invariance under n-ply observe-control) about objectivity put forward in Broad-spectrum philosophy is applicable to examination of all knowledge and cognitive truth in theory and the two criterions put forward in Broad-spectrum philosophy for examining cognitive truth are the concrete realization ways of practice standard. These achievements are the basis of practicability of the scientific "truth-seeking" spirit. The principles about absoluteness and relativity of objectivity are the basis of absoluteness and relativity of truth and the relativity of truth is the basis of "skeptical spirit" in science. Song (2002) also applies the principles of Broad-spectrum to conduct concrete analysis on several typical methods (interdisciplinary method, analogy transplantation method, system replacement method, etc.) of scientific research.

Zhang (2006) discussed the complex object-ideological problems in ideological and political education. Her main study is: first, by using the Broad-spectrum Theory of mapping method gives the thought (manifested as generalized image system) and social existence multiple mapping models in order to hierarchical simulates the dependence and complexity of thought to social existence. Second, by using the Broad-spectrum Theory of Class Change gives the δ – self-stability model of changeability and stability of the thought and draws out three basic conclusions important to the ideological and political education-interference resistance, self replication and the pros and cons of duality.

Gao (1999) made a Broad-spectrum analysis on the two basis of the extension theory (also known as matter element analysis)-the extension set and the theory of matter element transformation, he put the structure of extension set, the concept of the zero bound and the Broad-spectrum Theory of Yin and Yang, the Broad-spectrum Theory of Class Change together, thus the matter element transformation and generalized transform are combined, in a certain sense, the results generalize the mathematical foundation of extension theory.

In addition, Zhang (2001) made a specific Broad-spectrum analysis on some basic concepts of discrete mathematics. In theory evaluation, there are dozens of scholars give Broad-spectrum Philosophy many positive, affirmative evaluations. Due to space limitations, here only lists some representative ones.

Xu (2005) considers Broad-spectrum Philosophy as "a brilliant flowers of pan systems methodology bearing on the philosophical garden" and "a unique new theory system".

Song (2002) thinks that the Broad-spectrum Philosophy research will eventually lead to profound changes of the philosophical principles and the system itself, to bring a new look to the thousands of years of philosophy.

Zhang (2001) deemed "no doubt that Broad-spectrum Philosophy belongs to the most challenging, the most adventurous subject of the philosophy research" and pointed out the "four modernizations" (generalized axiom, modelization, mathematization and procedurelization)" greatly deepen and promote the research of basic theory of philosophy".

Zhang (2001) points out: Zhang Yuxiang uses Pan systems methodology, Pan systems mathematics, Pan systems philosophy to develop creative Broad-spectrum Philosophy and does a valuable exploration not only for the intersection of philosophy and systems theory but also the modernization, standardization, formalization or mathematical of philosophy

Gao (1999) focus on evaluation of an important part of Broad-spectrum Theory-the Broad-spectrum Theory of existence, he pointed out: one of the most distinctive feature of the Broad-spectrum Theory of existence is it abandons any substantive concepts, such as primal force, 'Five Elements, molecular, atomic, general material, field and so on, or even abandons any particular relationship or the structure concept-system, organization, organism etc., with equivalency (invariability) under the action of n-ply observe-control mode to replace them, but take them as a special case in which all. Such a thought not only adheres to the basic principles of the concept of materialism material-independent of human consciousness and to human consciousness reflected, but also greatly extends the scope of the materialistic ontology.

With the above-mentioned distinctive characteristics closely related is the multivalent objectivity theorem: in a specified observe-control mode (for example in photoelectric effect experiment), some things are certain attributes (such as light is a particle) and in the observe-control mode changed (for example in the diffraction experiment), things will from an objective property shows another objective attributes

(such as the particle property of light into the wave nature of light), each kind of observe-control mode corresponds to a "leaf" (equivalence class), a variety of observe-control modes correspond to a number of "leaves" (equivalence classes). Such a conclusion whether for the ontological, epistemological, or for the truth view, practice view is a significant advance.

The third distinctive feature of the Broad-spectrum Theory of existence is that for the first time from a very unique perspective examines the typical form of the objective existence of the five-hidden existence (corresponding to manifested existence), the historical existence, the future existence, the existence of virtual reality (corresponding to the real existence), infinite existence (corresponding to finite existence), not only gives them a clear definition, but also the detection of these special mode of existence which can be observed, control and can simulate the mathematical form. This is undoubtedly a huge expansion of the ontology of dialectical materialism".

Zhou (2001) fully affirmed the bold and innovative spirit of Broad-spectrum Philosophy and he deemed that Broad-spectrum Philosophy can be called "Chinese Broad-spectrum Philosophy School."

Zhang and Huang (2007) said the full affirmation for "Broad-spectrum Philosophy introduces Structuralism view point to dialectics and formed construct ideology of dialectical structuralism, it make the two opposite judgment set up at the same time by introducing different conditions and it solve the antagonism of known and unknown with the structure analysis method, as well as Marxist Political Economics and western economics to represent two different levels the economics point of view.

Jia (2008) gave a high evaluation, points out that Broad-spectrum Philosophy combine the modern mathematical methods and philosophy ideas together, which is a big breakthrough and the innovative spirit is worth to carry forward and study.

SOME PROBLEMS AND FUTURE DEVELOPMENT OF BROADSPECTRUM PHILOSOPHY

Broad-spectrum Philosophy has gone 16 years, in retrospect, of course, is full of difficulties and setbacks, but going forward, how to develop it? To this end, we interviewed Professor Zhang Yuxiang, director of the Broad-spectrum Philosophy Institute of North China University of Water Resources and Hydropower; he put forward the following ideas of Broad-spectrum Philosophy.

First, the basic theory study: Currently, the basic theory of Broad-spectrum Philosophy has six parts,

namely the Broad-spectrum Theory of Existence, the Broad-spectrum Theory of Connection, the Broad-spectrum Theory of Yin and Yang, the Broad-spectrum Theory of Class Change, the Broad-spectrum Theory of Mapping and the Broad-spectrum Theory of Value. It can be said that the six parts have a larger contribution, i.e., relative to the traditional philosophy; there are substantial advance in axiomatization, modelization, mathematization and procedurelization. But in contrast, the Broad-spectrum Theory of Yin Yang and the Broad-spectrum Theory of Connection are weak. The reasons are: First, the development of quantum mechanics proposes hitherto unknown problems to the Broad-spectrum Theory of Connection. For example, how to understand the ψ field (the quantum vacuum zero-point energy and holographic field) in the book "the pool of ripples-the evolution of the universe" (Laszlo) doctrine? What relation is between things mechanism hiding in Quantum communication and the theory of Universal Connection? Second, in mathematics, if we can exactly describe the structure of Yin and Yang of the dual isomorphism and the self dual isomorphism or the dual homomorphism and the self dual homomorphism? All these questions need to seriously rethink.

Second, the application study: Despite applied in more than a dozen fields, the application study of Broad-spectrum Philosophy is not enough in-depth and not widely infiltrated. Not enough in-depth, refers to in the application of subjects, only scratch the surface. Such as, in the field of Political Economy, it only does mathematical description on the labor theory of value, but the rest of the Principles of Political Economy is not yet involved. And in the field of law, it only makes certain structural analysis on the Right of Discretion and the national institutions set-up, the rest of the legal issues involved are far from. Not widely infiltrated, means that there are many disciplines has not been involved, Such as the science of military strategy, theory of history, ecology, linguistics and so on. In particular, applied advantage discipline of Broad-spectrum Philosophy has not formed. Here, the advantage discipline is to say, the application of Broad-spectrum Philosophy in certain subject, can make the subject obtain new results which are different from the traditional theory and methods and cannot get by traditional theories and methods. For example, in the field of Systems Science, the Broad-spectrum Philosophy only does some study in general system theory, but in the self-organization theory of Systems Science there still have a lot of study to do.

In the application study of Broad-spectrum Philosophy, philosophy workers should cooperate with professional workers of various fields and learn from each other that can bear fruit.

Third, popularization and publicity work: Through more than 10 years of published papers, academic exchanges and other work, Broad-spectrum Philosophy in the philosophy especially in Dialectics of nature of Henan has a greater visibility. Through the two national academic conferences, Broad-spectrum Philosophy also has certain effect in the community of Dialectics of nature. But in general, publicity and popularization is not enough. The main reasons for this situation are: First, Broad-spectrum Philosophy is always in the further study, there are still many imperfections, not eager to propaganda. Second, because Broad-spectrum Philosophy is the pursuit of axiomatization, modelization, mathematization and procedurization, the new discipline, for the majority of philosophy and social science workers, due to the theoretical background and knowledge structure constraints, is very difficult to be understood and accepted. Even in mathematical science are concerned, it is also difficult to understand why philosophy without quantitative features can be mathematization, it is difficult to understand how a very profound philosophy can be axiomatization and modelization.

An important task of Broad-spectrum Philosophy in the future is good publicity, promotional work, including introducing new ideas, new methods of Broad-spectrum Philosophy by popular and lively language, applying this Philosophy in-depth, system characteristics in a more thematic areas. Thus, Broad-spectrum Philosophy will continue to be healthy, stable and sustainable development.

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