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学术争鸣

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Relationship between rural women Employment and empowerment

Khatereh siyar

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Abstract: Macroeconomic view of employment of different aspects such as creating income, production and entrepreneurship, science and technology development, etc. is important, and gives the dignity, status and social position and a sense of confidence from the social viewpoint of man. Working and use of inherent forces, skills and knowledge and personal management to begin to work and to accomplish the activity, are not specific to particular groups. Men and women can work in a community and yet affect it with job situations that are provided to them or they themselves create.

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Keywords: Employment, rural women, empowerment

1- Introduction:

Employment rate, like any social and economic variables directly or indirectly are affected by many factors among which can be reported the production rate, investment, wage levels, price level, government policies and foreign trade. Each of these factors may be positive or negative effects to be followed. Such factors and how they impact on employment rates, have a great influence in planning and policy and making coherent and efficient policy formulation (Amiri, 2000).

However, experts believe that China in contrast to other nations, especially developing countries, participation rate of women labor force is in high level and also their participation rate in the villages are a little more than cities. However, this participation is evident in most areas that the dominant form of employment is agriculture (lahsaeizadeh, 2004).

Aside from the economic role of women that clearly has been made in the past decades, the vital role of women in social and cultural dimensions of development process in rural areas has remained hidden from the polls. They train the next generation of farmers and teach them the next generation necessary knowledge. A Chinese proverb says, "If training a man, just training a man but if you teach a woman you teach a family." Women are local knowledge and local educators themselves, in preparing and providing food, health treatments and cultural values are the next generation (Fami, 2003).

Increasing Suffrage, lack of relying on vast patriarchal families, increasing cultural acknowledgment, relation with newer institutions, having intellectual independence, making decision for marrying, occupation, emigration and etc are those rights that they gain. gaining aforementioned rights by women in context of cultural and social framework

followed some changes that maybe lead to disfunctions and even create disorders and abnormalities at traditional , familial and kinship relations that dominated on villages (Fakhraee 2002) .

What that performing credits programs, has made in recent years, was on broad outlook with purpose to access to same results as above findings.

Thus, in one inclusive outlook , it is possible to use micro-credits programs to solve those issues which involved with rural women's economic limitations , so that lead them toward social empowerment, in the context of economic growth(Rahmani andalibi, 2001) .

2- Criteria of empowering women:

Enabling as a theory of policy making for women, in it present five criteria:

Welfare, access, Concientisation, participation and control.

2-1- welfare criteria :

In this criteria, men and women as human resources of development should enjoy of desirable welfare conditions and equality (Paknazar, 2000).

Most of timing developmental programs, have worked on base of women's welfare. They have considered and provided some services for women who were passive recipient of these services. But these services were limited to physical needs and mostly were considered to revive their role of productivity, again. sometimes , it has been said that this approach has begun at colonial era and has considered women from poor country and intended services for them that dose not exceed from that poverty level . Agricultural and industrial projects were designed for men and social programs for women and children. Most of welfare programs were inadequate or its success was limited. Considerable point in this criteria is that men and

women as human resources of development should enjoy equality and desirable welfare conditions. At this stage, women's material welfare and their enjoyment of welfare programs, compared to men (nutrition, death rate and ...) were considered. And women's role as producer to supply their own needs isn't very important.

2-2- access criteria :

Lack of access or limited access for women to sources including (fields, job, capital and training) cause that their functions at production is less than men (Paknazar 2000). Access to facilities, sources, designed program and projects for women and access to schools and ... are in this part. Just whenever most of other legal, cultural and social issues being solved, men and women would equally access to sources and facilities. Concept of enabling at this stage is that women have equal right to access to sources at family and greater society.

2-3- Concientisation criteria

Women should know that their problems aren't due to their individual inefficiency and shortage but it has emerged by social system in which discriminations has become formal and acceptable issue. (Araghzadeh, 2002). This stage is more critical and important than other stages. Because women can participate at development activities not just be passive users. Women have real equality at development, just when be aware. Concientisation will help to increase women's ability to equality at participation at society. At this stage, women face with critical analysis with society and will find that what has been considered natural and unchangeable reality, is changeable. (Bakhshoodeh, 2005).

2-4- Participation criteria

One the most important items that this criteria has considered , is men and women's equal participation at decision making process of affairs of family at society (Paknazar 2000) . Men and women both should participate at process of assessment needs, designing, performing and evaluation of projects and development programs (UNICEF, 1998). In summary, this criterion means women's participation at all stages of surveying needs, detecting problems, planning, management, performing and valuation.

2-5- Control criteria

This criterion emphasize on this point that in addition to equal access of men and women to development sources , they must have adequate control on these sources that this issue is balance criterion , between men and women so that no one exceed other one (Paknazar 2000) . Women should have opportunities

for decision making at workplace and home. If woman is producer, should be shared with part of her interest and wage. Women like men, should be able to choose her individual and social field and able to make decision and also development activities should be facilitator of these processes.

FAO (food and agricultural organization) addresses these three purposes as strategic goals while enabling women:

- 1- equality between men and women to access production sources
- 2- women's participation at policy and decision making
- 3- decreasing rural women's workload and increasing job opportunity and income for them (Paknazar 2000)

within theoretical framework of enabling women , having control on sources is presented as highest stage at women's participation process on development , but existing data at most developing countries , indicates that not only rural women haven't any control on financial resources of family but even they were deprived to access to sources and credits , specially through formal credits system (Shaditalab, 2002) .

The question that arises here is that what relation is there between enabling women and micro-credits programs? Nowadays, micro-credits are considered as effective mechanism to eradicate poverty for women. Interests of micro-credits further increasing women's income, include:

- improving women's role in family
- Increasing women's confidence, not only through obtain financial success through business activity, but through increasing women's access to social services and communication with other women.
- Changing at social level (social class) at perspective of women's role.

3- Factors affecting disparities in employment:

Regarding the employment of women should be said that some developing countries and third world have some barriers in women's employment way. Major barriers in this area include:

3-1 - Economic barriers:

A - emphasis on non-economic characteristics and roles of women b - private sector avoiding the investment in busyness jobs; C. - no diversity or low diversity in employment opportunities for women; D - high labor costs women for employers; e - women aren't the capital owner(Arefnia, 2004).

3-2 - Social Barriers:

- A - Illiteracy and low literacy level;
- B - Women not having the technical and professional skills;
- c - Discrimination and the difference in the socialization process of men and women in society;
- d - Women early marriage, and
- e- Heavy housekeeping duties (Banihashem, 2002).

3-3 - cultural barriers:

- A - Attitudes and community attitudes to women's duties;
- B - Emphasis on housekeeping activities and social isolation of women;
- C - There are certain traditions and beliefs in families;
- D - There is male-dominated culture;
- E - Discrimination and community attitudes to women,
- F- Some inappropriate work environment in terms of ethical issues (Kamali, 2004).

3-4 - political obstacles:

- A - Lack of participatory political institutions;
 - B - Low chance of women to earn Government officials;
 - C - The power structure and political plays.
- Span the range of these barriers indicate that except a coherent and consistent planning and extensive efforts at the national level, can not achieve women's employment improvement even in the long term (Khani, 2000).

Results and discussion:

Women as an effective member of society, can crystalline their lead roles in various responsibilities formations. These responsibilities include promoting the concept of participation and employment in life and building the suitable areas for freely activity and introduce the right of economic management, ownership and.... This requires that all fees and necessary training for women to be considered. Due to the fact that the concept of women's participation, is not necessarily the female employment, although certainly part of the participation of women will be crystallized in their employment, but in this context, home and family affairs by women and their role in nutrition and child growth and Their education are also many responsibilities that women often are responsible for them. Throughout history we have always been seen that women have always been active but in culture and tradition, this mentality largely exists that if the job exists, it would be for men. Because they are responsible for their families Economic or wherever there is a good opportunity for participation, men have a prior right.

Perhaps the reason that women are less important in the development is this thought and action. Because women are in occurred opportunities

in the second stage, or even sometimes do not come into account.

Zanjani in the article "Women's Empowerment" according to economic, social and cultural characteristics, one of the important subjects that have investigated is the effect of number of children in female employment in urban and rural communities. In Iran urban, employment opportunity population continually reduces by increasing the number of children. This reduction is weak, up to the third child and then takes the intensity. So that the employment opportunities of women decrease in pay to first child to the second 3 / 2 percent and the second child to the third 9 / 6 percent, while this reduction from third child to the quarter is 3 / 27 percent. But in rural society due to the household problems, type of activity and employment, increasing numbers of children not only make no reduction in women employment opportunities so with increasing the number of children, women's job opportunities is also growing and by having 7 child reaches its peak. Since then relegated to minor finds, in a way that employment opportunities of rural women that has nine child is equal to the job opportunities of a woman with one child. Thus children are effective on women employment so that increasing the number of children in urban society has negative effect and in rural society has positive effect (Zanjani, 2002). Lhsay Zadeh in a research by the name that (considering the role of Iranian rural women in the economic scene), first specified the women's place in job structure, and then compared it with the job site of rural men. His study demonstrated that the employment of rural women is important as men. Because the rural economy includes three separated and also related parts, namely agriculture, industry and services and the author, with the share of women in agricultural activities come to the conclusion that in addition to their considerable added value contribution in agriculture, unfortunately, the real value of their activity is not known has been formed in the article. (Lahsaezadeh, 2004)

Safiri in his PhD thesis, as "study of quantitative and qualitative aspects of women's employment and its relationship with economic development", knows that a part of the employment problems is because of some barriers that relates countries structure and also other parts is because of some non development barriers an some parts is also from the social - economic, and cultural barriers as development obstacles.

In some countries where are not appropriate and much needed job, women are damage more. In some where that the social hierarchy is base on physical strength, force and tyranny both in the family system and the hiring of women in institutions and organizations makes the difficult situation for them. Surely also the

cultural background are continuing these economic and social conditions, Safiri, the knows the Personality barriers and physiological barriers as non-development knowledge barriers and he say they are effective on women's employment (Safiri, 2000).

Razavi during a study has shown those women's achievements in academic and social areas in the past 30 years; according to their status in the labor market has not improved. Women's participation rates are low and their non-employment rates increase in these years their and their career options are still limited (lahsaeizadeh, 2004). Hashemi (2000) with the employment status of women in Iran has shown that the rate of economic participation of women in Iran were similar with developing countries, while their literacy and education rate are comparable with advanced countries. He believes that formal institutions, namely laws and regulations have the most effective on women's employment levels that in their turn are under the social and cultural effects.

Bamdad during his study on socio - economic status of women has shown that social and economic improvement of society is associated by increasing employment rate of women. There are also differences in cultural and social discrimination between men and women, is a serious obstacle in increasing the economic participation of women. Finally, increasing women's economic participation is the function of social development – economic factor (Banihashem, 2002).

The positive effect of government spending in women employment indicates the fact that, there are limitations and discrimination for women in the labor market that the market mechanism can not destroy it thus recognizing these limits, discrimination and government intervention in the market (of course in cooperation with people) is necessary to eliminate them.

Today there is this belief that communities rather than, affected by mood men and environmental conditions, affect by personality and education of women. Thus in the process of economic and social development, women affects are more than men, and the non-developed countries have understood the undeniable fact that to achieve the economic development should employ women creative and effective forces. Structure of female employment in different countries shows that there is a direct relationship between population growth and increasing employment rates of women. In other words, in countries where female employment rate is lower, the population growth and economic development is slower.

So if the state goal and the country's development policies, be the attention to women's active participation in society as half of the labor community, the cultural, social, political and economic area of

their presence should allow to provide till we can use their intellectual power, creativity, innovation and The large number of workforce innovation for family and society economic development, otherwise, with the slogan and write policies and strategies and using no proper tools and executive Migration, like the former, manpower of this huge group saw little presence in the various community activities.

Different economic sectors (particularly industry and service sector) have the capacity to create many job opportunities for active participation of rural women that can be more benefit in more employment opportunities. Some variables such as marriage to divorce ratio, the share of government expenditure of GDP, the degree of development and Underdevelopment, number of children born and household expenditure are impressive on rural women's employment rates. Thus, if policy makers intend to predict the employment status of rural women, they should attend to affective factors on this group employment.

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三旋自组织原理 ----21 世纪新弦学概论 (4)

邱嘉文

Recommended by 王德奎 y-tx@163.com

摘要：三旋自组织原理从能量运动形态的角度，给出了自组织在几何形态上的基本拓扑的选择。正是类圈体的三种自旋基本功能的存在，才得以产生自组织的现象。

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关键词：三旋 自组织 应用

自组织理论简介

自组织理论是 20 世纪 60 年代末期开始建立并发展起来的一种系统理论，发展了贝塔朗菲的一般系统论。它的研究对象主要是复杂自组织系统(生命系统、社会系统)的形成和发展机制问题，即在一定条件下，系统是如何自动地由无序走向有序，由低级有序走向高级有序的。

自组织理论由耗散结构理论、协同学、突变论和超循环理论组成。自组织理论以新的基本概念和理论方法研究自然界和人类社会中的复杂现象，并探索复杂现象形成和演化的基本规律。从自然界中非生命的物理、化学过程怎样过渡到有生命的生物现象，到人类社会从低级走向高级的不断进化，等等，都是自组织理论研究的课题。

以上对于自组织理论的简介摘自 MBA 智库百科。

在自组织理论中，讲到了系统自组织的基本规律和原理，其中自组织超循环结合方法论、自组织分形结构方法论，还讲到了具体的自组织的循环结合原理以及几何结构的演化规律。如何从系统功能形成、循环结合方法和几何结构特征三个方面进行系统的分析，使各方面的自组织理论本身成为一个有机整体，是一个有待进一步探索和研究的课题。

三旋理论简介

三旋理论我国当前的科技工作者王德奎先生提出的一个科学假说。以下是王德奎本人对三旋理论的简单介绍：

三旋理论是用量子类圈体的三旋模型来阐释天地生数理化以及人类社会的一门解释性的科学理论。该理论基本观点是：物质的基本粒子在几何形态上是类似环体的圈，而不是类似球体的点，而且，圈比点更基本。三旋指的是类圈体的物质基本粒子的三种自旋方式——面旋、体旋和线旋。

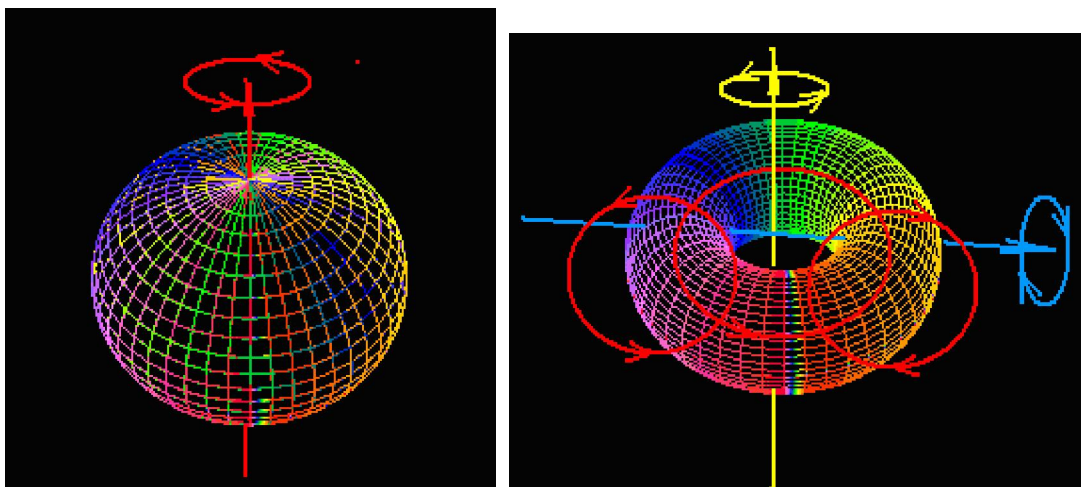
三旋理论强调了被大多数物理学家和哲学家们忽视的，物质微粒的几何形状的区别，也就是球面和环面不同伦的数学事实。三旋理论发现：如果物质微粒以类圈体取象，就定量地结束了粒子结构单元是无限可分的猜测。按照三旋理论的观点，宇宙是由一个个量子类圈体构成，它们的自旋模式就是粒子质量和力荷的微观起源，决定着我们在寻常三维展开空间里观察到的那些事物的基本物理属性。

三旋理论自洽地解释了物理学、生物学、脑与认知科学、宇宙、物质、生命起源，以及社会经济学中的许多现象，并给出了统一的数学图像。按照创立目标和实际研究内容来看，有机地贯穿自组织理论，以形成一个有机的整体理论体系，是三旋理论必然具备的功能。

类球体和类圈体自旋运动方式解析

自旋运动是物体的自我运动方式，也就是物体在相对自身所处空间内的运动方式，而不考虑物体随所占空间一起的运动的运动方式。

图 1.a 显示的是一个类球体的自旋方式，就是围绕穿过球心的自转轴自转。由球是立体全对称的几何体，“穿过球心的自转轴”只是唯一的一种自转轴的类型，因此，球的自旋就只有这一种类型。球的自旋空间就是球体自身占据的空间。



图(1) a.类球体自旋方式图解

图(1) b.类圈体自旋运动方式图解

图(1)b 是一个类圈体的自旋方式解析。

图中红色的穿过圈体中心的园形线形成一个园形轴，整个类圈体可以围绕这个轴做内外翻转的自我旋动。图中红色自旋线标示的是类圈体上口朝外，下口朝内的循环自旋。这种自旋，被三旋理论称为线旋，相应的自旋轴叫线旋轴。

图中的黄色的垂直穿过圈体的中心线形成一个轴，整个类圈体可以围绕这个轴做水平的自我旋动。图中黄色自旋线标示的是类圈体从左到右的循环自旋。这种自旋，被三旋理论称为面旋，相应的自旋轴叫面旋轴。

图中的蓝色的水平穿过圈体的中心线形成一个轴，整个类圈体可以围绕这个轴做垂直方向的自我翻转旋动。图中蓝色自旋线标示的是类圈体在做前部自下朝上、后部自上朝下的循环自旋。这种自旋，被三旋理论称为体旋，相应的自旋轴叫体旋轴。

类圈体的线旋、面旋和体旋合称三旋，可见类圈体的三旋运动范围，是一个球壳体的空间范围，球壳的内空球直径等于类圈体内空的最小直径，而外球直径则等于类圈体的外圈最大直径。

支持自组织的三种基本功能

自组织是秩序混乱的、相对简单多种类个体的元素通过相互结合形成相互间有一定秩序和整体有一定结构的聚合体，这样的整体又以某种个体的元素身份参与更高级别的整体的构建，这代表着事物不断进化的一个趋向。在自组织现象发生的过程中，对于组成整体的个体，可以归纳出三类基本的功能：搜索和定位、团结和凝聚以及新陈代谢。也就是说，不同种类的个体，有而且只需要有这三类的基本功能，就能参与并导致系统的自组织的发生。

新陈代谢功能是个体与外界进行物质、能量以及信息交换，产生外界联系的基本功能；团结和凝聚的功能是个体之间相互吸引和排斥，保持个体之间在适当的距离、角度和形态上的位置关系不变或有规律的变化所需要的基本功能；而搜索和定位功能，则是个体与其他个体的结合没有形成或形成不牢靠时，寻找新的或其他更牢靠的结合机会的功能。而个体间结合是否牢靠，则和个体解除结合需要的适当的能量出现的机会大小有关。而这适当的能量，不仅指能量的大小，还指能量的运动形态，也就是“巧合”的程度。搜索和定位的功能，就是个体寻求“巧合”的基本功能。

三旋运动的功能机理

基于基本的粒子几何形态是类似呼啦圈和轮胎一样的圈体形态的假设，可以猜想到：比基本粒子更大的中观和宏观的物体，必定是靠这样的几何形态的自我运动的相互结合来形成的。也就是说，如果这个假设有可能成立的话，那么，系统组织的三种最基本的功能就应该能与这三种运动方式形成对应。

对照三旋运动的形态观察，三旋运动的线旋，是一种“里外翻滚”的运动形态，在这种运动形态中，在旋入的孔洞一侧可对外形成“吸入”性的作用，而在另一侧，则产生“推出”性的作用。可见，线旋是使类圈体具有“输入输出”惯性的一种运动方式，很自然，可以对应到新陈代谢功能产生的机理上去。

面旋是使类圈体形成一个“圈”的运动方式，因为面旋的存在，可维持组成类圈体的元素稳定的环绕运转，并在中间形成“孔洞”，由此产生“里外”的区分。可见，面旋是一种“抱团”性的作用，可与自组织的团结和凝聚功能的机理相合。

体旋是一种改变圈体孔口朝向的运动方式。如果说，面旋使圈体产生了两极——两个孔口；线旋使两极具有不同的极性——吸入和推出，那么，体旋则用来改变极性的朝向。类似雷达的整体旋转可以改变雷达发射和接收电磁波的朝向，体旋的搜索和定位的功能机理也是非常明显的。

三旋类圈体的简化图形符号表示

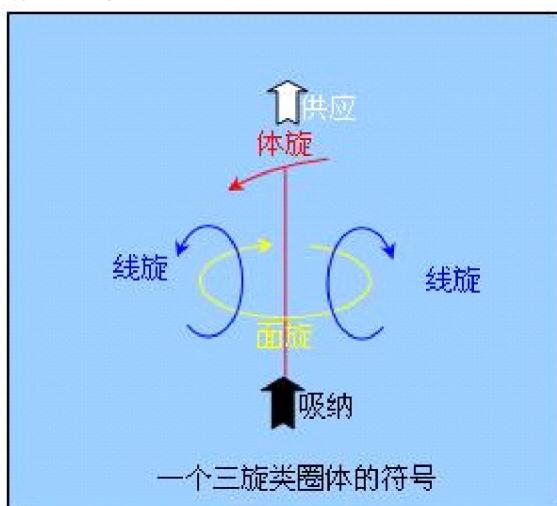


图 2. 一个类圈体三旋的简化图形表示方法。

图 2用三种颜色的旋转线分别表示了一个类圈体的三种自旋同时进行的“原子”模型。图中可体会到面旋的团聚作用，体旋的方向调整作用和线旋的两极生成的作用。

两个三旋类圈体的结合

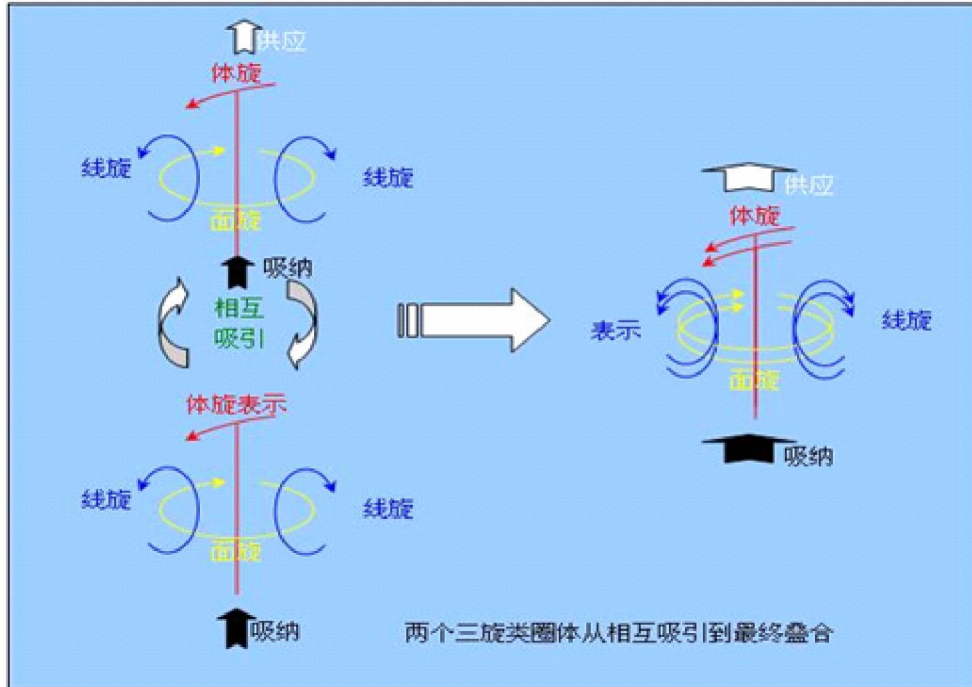


图 3. 两个三旋类圈体的一种结合方式

图 3 显示了 2 个三旋类圈体的一种结合过程：2 个类圈体的体旋可调整类圈体两极的朝向，当 2 个类圈体的朝向出现供应与吸纳相对时，2 类圈体之间产生引力，两类圈体相互吸引靠近，最终重叠为一个能量更大的类圈体。

多类圈体圈管的自组织

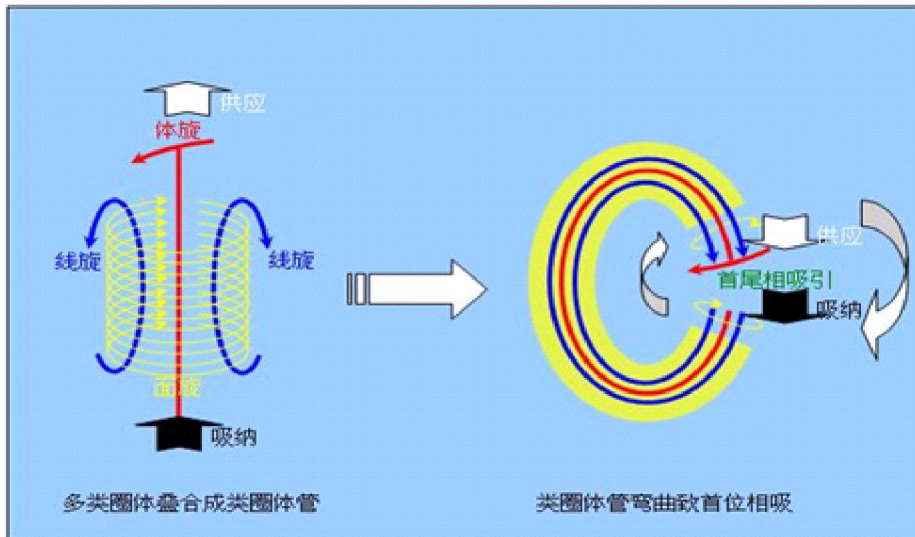


图 4. 多类圈体自组织为圈管

图 4 表示了多类圈体管的形成过程。假设圈管的头部是线旋的供应方向，那么尾部就是吸纳方向，当这根管发生弯曲，首尾靠近时，会出现首尾相吸的现象。一旦发生首尾相吸结合，这条多类圈体的管整体就成为了一个更高层次的类圈体。

新的高层类圈体的形成

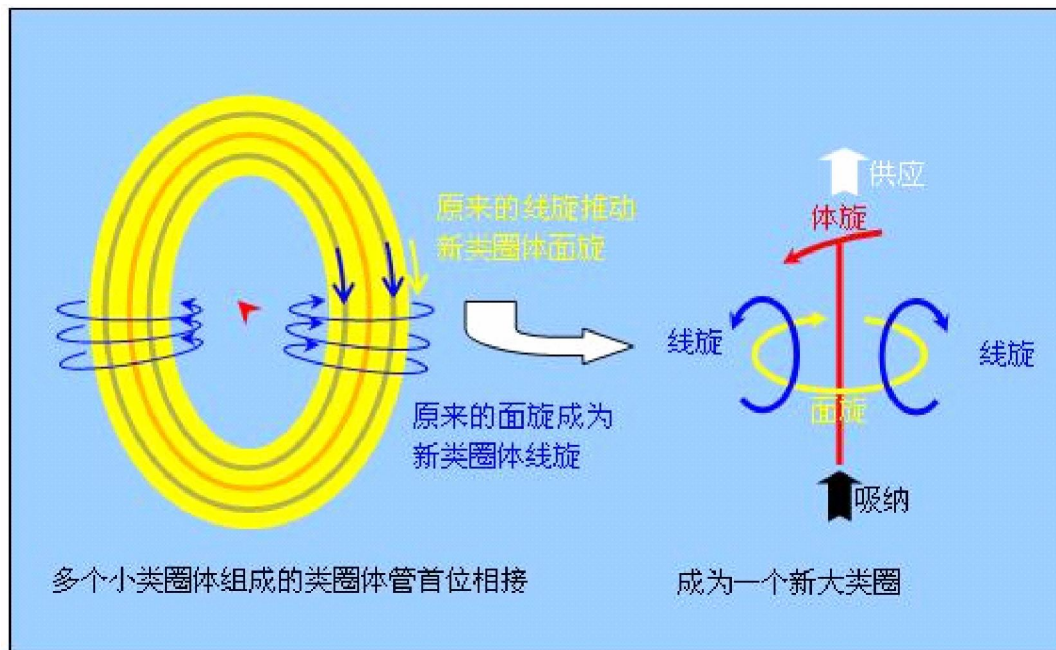


图 5 高层新类圈体的形成

当多类圈体管首位相吸对接成功，原来小的多类圈体的面旋，成为高层大的单类圈体的线旋，相邻小类圈体之间的线旋形成相互的推动，正好构成大类圈体的整体的面旋，这个大的类圈体在外界扰动下，能产生高层的体旋运动。

从图 2 到图 5 可见，类圈体的三旋，能在空间几何上实现层次性的自组织。

当然，这里设想的自组织是一种很“正统”的自组织，或者是一种理想结构的自组织。

实际的类圈体的自组织过程中，可能会发生很多偏向、分叉和扭结的情况，就出现了纷繁复杂的世界景象。

类圈体是能量运动的形态

由于习惯上对形态的思维多是针对可见、实在、有形物质的，而针对物质的形态观测结论，大多是类球的（没有孔洞的几何体）。所以，当三旋理论提出类圈体的量子形态假设时，其实指的是能量运动的基本形态，就较难被大家的习惯性思维接受。

如果能建立物质-能量统一的高度来理解，物质本身，也是能量自组织聚合的产物。当能量的三旋运动在各个朝向上相互结合时，在聚合物的相对稳定的壳界上，也很难观测到类圈体的孔洞，这就是物质形态类球，而能量形态类圈的缘由。

事实上也是如此，无论是磁石的磁力线分布，地球地磁场磁力线的分布形态，还是电磁波的形态，都已经从微观和宏观的尺度下，透露出了能量形态的类圈性。

三旋划分能量的不同功用

三旋理论说量子的体旋对应量子的热运动是很有道理的。

热运动的粒子，其实就是在缺乏体旋约束的状况下，才拥有较大的热运动能量。而热运动的能量，其实就是为粒子寻找约束而提供的能量。热运动的能量越高，粒子运动速度块，频带越宽，寻得合成反应的机会就越高。这就是在加热情况下氧化反应加剧的原因的一种解释。而一旦化合反应完成，粒子的体旋受到约束，只能跟随新的大粒子进行整体的的体旋，热运动能量显著减少，取而代之的是面旋的能量：维持化合物的稳定聚合态的粒子的结合能。

也就是说，可以认为粒子的运动能量其实就是包含三种：体旋能量、面旋能量和线旋能量。体旋能量对应粒子的热运动能量，面旋能量对应粒子的结合能量，而线旋能量则对应粒子的可自由交换的能量。

类比一个职业的人，在失去工作后，就要整天去找工作。找工作消耗的就是体旋能量。找到工作做了，专心工作，就是面旋能量；工作挣了一份工钱可养家糊口，就是线旋能量。一个社会中，如果太多的人处于寻找工作的状态，那么，“社会的热能”就处于较高的水平，社会的熵值就较高，相反，安居乐业的人多了，社会熵值就降低了，因为，此时的能量转到面旋中的增多了。

面旋能量有比较难维持较高的水平，比如，企业越大，自身运作越困难。所以，面旋能量和线旋能量要分配适当。

小结

三旋自组织原理从能量运动形态的角度，给出了自组织在几何形态上的基本拓扑的选择。自组织产生的基本形态是类圈体，而不是类球体。而且，类圈体自组织的产生直接依赖的是类圈体的三种自旋运动方式：线旋、面旋和体旋。线旋、面旋、体旋分别让基本的能量单元拥有了供需两极、团结凝聚和搜索定位的功能。而正是这三种基本功能的存在，才得以产生自组织的现象。

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4/8/2011

解读肖钦羨《量子天文学》

---21 世纪新弦学概论 (5)

襄笑

Recommended by 王德奎 y-tx@163.com

摘要：兰州大学出版社 2005 年出版的 462 千字的《量子天文学》，是一本不可多得的最具有代表性的前沿基础科学探索的巨著。对比《非线性量子力学》看肖钦羨、庞小峰、吴新忠、张志强，就类似人处不同年龄、学校层次的阶梯，这种差异是和区位的需要、能力、条件协同，能发展的结果。

襄笑. 解读肖钦羨《量子天文学》 ---21 世纪新弦学概论 (5) . Academia Arena, 2011:3(5):12-19] (ISSN 1553-992X). <http://www.sciencepub.net>.

关键词：以太 太阳能 弦论

如果有人要写《新中国前沿基础科学发展史》，兰州大学出版社 2005 年 1 月出版肖钦羨和襄剑文写的 462 千字的《量子天文学》，是一本不可多得的最具有代表性的新中国前沿基础科学研究探索的巨著。我们看重这部书，或者说它的主要贡献，是能联系到未来人类无核污染的量子色动能源（QCD 能源）的探索。但为什么解读只用肖钦羨先生的名字来标示，是因为对襄先生的情况不知，我们的解读只是根据和肖先生的通信材料写成的，和襄先生无关。

一、 差异协同话《量子天文学》

和肖钦羨先生神交已经很久，那是在新华网“科技论坛”专栏常看到以“宇宙神”的网名支持“水变油”而又有分寸的帖子，慢慢知道“宇宙神”就是肖钦羨先生，他出版有《量子天文学》的专著。2011 年初他把《量子天文学》送来，我们也把《三旋理论初探》和《求衡论---庞加莱猜想应用》两书寄给他，深入的沟通交流由此发生。

肖先生来信说：“我原本以为我的书会在 22 世纪才会有人看的，您现在天天在看，令我感动。我反对的不是现在的核能，我只是认为太阳中心不存在热核反应。我是用以太的压力，渗透力、正反以太的分化复合力及流动力去解释强力、弱力、电磁力及引力。这种解释和超弦没有任何关系。我的理论用不着这十几维的数学帮助。是贫民理论”。在《量子天文学》(以下简称“肖书”) 303 页，也有要“留给 22 世纪的人去评论”的话。

其实不需要等到 22 世纪。平心而论，如果不偏执，只需了解新中国前沿基础科学探索史，就会明白目前我国科学殿堂内外形形色色的“以太论”和实数超光速的“快子论”，以及科学殿堂内的“层子模型”，它们差异协同自主发展，实际是可以归为一类的量子中国基本粒子观，我们把它们称为“编织态基本粒子观”；与之不同的是类圈体三旋基本粒子观。

1、1992 年阿希泰卡尔、罗维列和斯莫林在《核物理》发表的文章，首先将编织概念引入物理学：表示编织的这些态，在微观很小尺度上具有聚合物的类似结构。但我们把肖钦羨等人的“以太论”，“快子论”、“层子模型”称为编织态基本粒子观，不完全同于阿希泰卡尔等说的编织态基本粒子观；当然也吸取了他们把编织看作可以呈现相互交缠构成网络迹象的意思，以此来命名类似长安大学郑烈先生分析新易道人技境泛系全息的“泛系不泛”的这一类中国万有理论 TOE 研究；这是一个人数众多，追求基元翻新反国际科学主流的人群。

1) 说它们是“编织态”，有没有根据呢？我们以肖书中的泛系以太论事实来说明。这里没有说以太论不对的意思，以太论被抹上中国特色，这类似吴新忠博士把它解读为是拉量子力学朝麦克斯韦路线回归。吴新忠说，罗教明，刘显刚以及更早的谭天荣的反哥本哈根学派的新量子解释，这是坚持麦克斯韦场论，因为相对论的麦克斯韦场论根基似乎被量子力学破坏了；罗教明、刘显刚把定态轨道理解为电子辐射与原子核对于辐射产生反冲力平衡的结果。吴新忠批评卢瑟福的原子模型被玻尔引入定态，跃迁后，已经毁灭了法拉第力线；而重新理解麦克斯韦路线才是进步。但众所周知，麦克斯韦方程奠定的是以太论科学；如果只把这认

为是进步，那么反方向比麦氏更进步的法拉第力线，仍然是弦线，这就更值得研究。

2) 肖书 303 页等多处也明说要恢复“19 世纪的以太观”，认为宇宙真空中充满了以太，而且可以分化为正以太和负以太；绝对真空中正负以太各占 50%。该页说：如当代理论家假定质子和中子是由不同的夸克组成的一样，我们也假定整个宇宙是正负以太所组成，这才是真正的大统一。并说明这是和夸克、弦论等模型的对抗。但肖书类的这种大统一必然是编织态：如把太要编为正负；再用正反以太，编织以太正反光子、以太正反电子、正反以太磁场、正反以太引力场。即用各种各样的正反以太编织各种各样的正反物质粒子，或者用正反以太含有量的疏密编织它们，以及它们在正反宇宙中的分布。这其实只是减少具体的量子的用名。

3) 肖书 197 页直接用“以太是上帝”作章节标题，这是可以理解的。书中就提示正反以太及其互变，这必然和我国古代易道阴阳等学说有联系，也和电子计算机编程用的 0 和 1 的数字符号对应。由此编织让正反以太掌管宇宙，就像叫 0 和 1 掌管计算：正反以太粒子的波粒互变，就像电子计算机中的运算器 0 和 1 的互变一样，我们的宇宙就是一台巨型计算机。

2、肖书写得最好的是第 8 章，其中精华之一的是说强力像真空吸盘，弱力如漏气，很有启发性，且拉近了和弦论的反德西特 (AdS) 空间、D-膜的距离，并和中国层子。快子同类。

1) 因为肖书说的强力的正反以太粒子，如果像真空吸盘，那么这类“真空吸盘”必然是正反以太的“编织态”，且类似膜状。我们在《从庞加莱猜想想到黑洞战争》一文中就说过，早在马尔达西纳之前，智利科学家泰特鲍姆等在 1989 年所发展的反德西特 (AdS) 空间，把层子的“子”的意思揭示得淋漓尽致。因为反德西特空间并不是德西特空间的反物质，其“反”表示空间曲率是负的。关于 AdS 最有意思的事情，是它有着许多球状盒子内壁的特征，而且 AdS 是一个时空连续统，并且可以做许多小盒子。这里也有类似 D-胚垛的层垛意思；如果盒子里面的时空连续统类似于一个柱体的内部，那么 AdS 也可以看做是由无数个片层构成的。这就类似中国层子的编织态。而说到反德西特空间和 D-膜，不能不说赵国求教授提出的量子力学曲率解释：AdS 用到负曲率，德西特空间是正曲率；D-膜的曲率可以为正、为 0，反 D-膜的曲率可以为负。赵国求用量子曲率修正相对论与量子力学，他用“形点转换”，认为电子的形状是球体，把曲率和可视度、几率、实验观察量等联系在一起，否定正统量子力学的非决定论解释；又用曲率波曲面曲率及方向变化，说曲率为 0 体现实数超光速，否定相对论的速度有视界解释。这就又类似中国快子的编织态。

2) 当我们把《三旋理论初探》和《求衡论---庞加莱猜想应用》两书寄给肖钦羨先生后，肖先生很快回信说，他和我们是两个不同的体系。再以后的不断交流中，肖先生反复说明：“我是形象思维，您是抽象思维。我写的东西，中学生以上文化就可以看懂，而先生写的东西，即使是受过高等教育的人，如果不是本专业人士，也看不懂，这就造成我们学木交流上的鸿沟”。“我再不愿被传统理论拉回教室里去听那些宇宙大爆炸，超弦之类的故事”。“我的愿望是拆主流的台，不想去对主流有所贡献”。“我的《量子天文学》是我初步对天文学的探索，我是完全抛开传统理论，自己创立新的理论”。“我把《量子力学》中的波粒二相性解释为波粒互变，是为了解决我的终极理论”。“我现在的物理思想是：一、反对宇宙大爆炸理论，支持宇宙永恒论，二、抛弃传统的超弦理论，提出自己的终极理论。我今后得抽空以这理论为基础单独写一本以太天文学。不知在我有生之年能否完成。”

3) 我们并不排斥肖钦羨反传统，每个人都有科学创新的权利。特别是他说：“我身体不好，老了，走不动了！近 80 的人了，身体不好，写这一段文字都很吃力，耳朵也听不清家人说话了，语言交谈已不方便了。中山大学自我毕业离校后再未去过”。这使我们很感动。肖先生还告诉：“我是 58 年考进中山大学原子核物理系，五年制，毕业后分配到中科院兰州近代物理研究所，主要在实验室工作。《量子天文学》也是我退休后所写”。可见他的核物理功底很深，我们也想从他反太阳能是热核能得到一些启示。

3、肖钦羨先生还是一个高尚的人。正如向国富先生说：不是申请经费搞科研，纯基础科学是自己拿钱满足自己好奇心的一种求解自然秘密的人类行为。即大家都是做义工，不是为某个小学派服务。说肖高尚，是他像崔瑛达、罗正大、陈叔瑄等一样，即使与我们观点不同，也能与人为善，这是很不容易做到的。因为相反的人也不少，对方观点不同，他们就拿邪说斗智斗勇。例如，刘奇师先生说 2007 年 11 月在成都都江堰民科会开会，我们送给代表们的《求衡论》一书，是卖书。他说因为他的观点不同。张志强先生更说成是卖书为赚钱。

纯基础前沿科学看的人不多；出版社对《求衡论》请多位专家审读，同意出版后还要作者要交 56000 元的赞助费。2007 年 11 月都江堰民科会开会，为给到会代表每人赠送一本《求衡论》，作者早和大会主办人说定，除交完大会收的所有费用外，再给大会赞助费 1 万元。但开幕那天另一位主办人，说是四川省政府的接待公司的一名干部，还扣住运送《求衡论》书的车，说不给钱，就不准下书。四川科技出版社的副社长赵坚先生对此很有意见。赵常德先生也帮助找主办人讲理。为平息事端，作者之一立马把 1 万元的赞助费交

给主办人。事情平息后，另一位作者在大会学术报告厅亲自分发送书，当时宋正海、张帆先生等还帮过忙。

1) 但有网友又说，书不过卖过送，是送“垃圾”。那么“垃圾”是怎样炼成的呢？不说 40 多年不断的业余买书自学，就说 15 年前为买到庞小峰先生的新著《非线性量子力学》，1994 年我们亲自到四川民院庞家去拜访，还送给上了“孤立子演示链”的模具。孤波一般是在水槽中演示，庞先生对用铁环编码做成的孤立子演示链大加赞赏。我们和庞小峰是同年进大学的同龄人，他在中科院读研究生时，就与他几次通信交流过超流等物理问题。重庆出版庞的这本新著，是 50 元一本，庞家桌上摆有 10 多本。我们拿出钱想买一本。但庞先生说他要送评委评奖，没有多的，也就没有买到。15 年后我们终于买到电子工业出版社 2009 年出版庞小峰的《非线性量子力学》一书（以下简称“庞书”）。庞书第 8 章，是谈非线性量子力学理论的应用，和肖钦羨先生说的以太、强力，吴新忠博士说的哈密顿量、厄米算符有关。

2) 因为从孤立子演示链看来，庞小峰类似已经把弦论或弦学，运用到了有机分子的乙酰苯胺、蛋白质分子、分子晶体结构、氢键结构和氢键系统等典型领域。肖钦羨、庞小峰、吴新忠是新中国自己培养出来的进入科学殿堂内工作的三代科学家，为什么他们在纯基础前沿科学研究上的差异那么大？而且这和刘奇师、张志强更有不同。但他们的差异都能协同吗？

这是我们想解读《量子天文学》的原因。其次肖书说的太阳系形成，多次用到的化学元素质量及其宇宙丰度的排序表，肖说这不是他的发明，是根据别人资料整理的。但元素宇宙丰度排序与 QCD 有关。从庞书第 8 章看看肖钦羨、庞小峰、吴新忠、张志强，就类似人处不同年龄、学校层次的阶梯，这种差异是和区位的需要、能力、条件协同，能发展的结果。

一位领导同志说得好：新中国成立六十多年，特别是改革开放三十多年来，取得了一批具有世界先进水平的科研成果。同时，从总体上看，同国际先进水平相比，还有明显差距。

3) 肖钦羨先生是老大哥，我们的解读不是批评，也不是建议，只是自己对 21 世纪新弦学的认识。庞书第 8 章就已经不把量子叫量子，而类似叫振子、激子、声子，甚至根据情况，直接就叫肽群、离子、质子运动；但仍归用量子微扰理论能计算，或被修改过的按照拓扑性扭结孤子描述的有哈密顿算符波函数的非线性量子力学方程。这不就对应肖书说的量子是以太微观粒子，类似庞的非线性量子力学方程大统一的意思。其次，庞小峰的孤波非线性量子力学数学描述，也再现了吴新忠要求把宏观三旋的拉格朗日量、哈密顿量构造出来，再换用厄米算符做量子化的处理的方法。吴先生可看看庞小峰的数学方程，并与它的源头作比较。

二、天文轨道建大型强子对撞机

1、孤波与弦论

庞小峰拉孤波到非线性量子力学方程来描述微观粒子和量子，肖钦羨用以太分正反到每个粒子都类似计算机中二进制元件 0 与 1 的对应来描述微观粒子和量子，使人都清楚他们的形象与抽象的联系。但两者的微观操作机制并不太直观。21 世纪新弦学用类圈体及其自旋说孤子演示链与弦，却能同时解读以上两者；这个秘密类似生物食物链被抽象到真实的弦链。

1) 众所周知，食物链指在生态系统中，各种生物之间由于食物关系形成的一种关系，如草 昆虫 蛙 蛇。但这仅是一种表面关系。数理上之所以能形成食物链，是因为每个生物体，都可以看成类圈体。例如人的口与肛门相通，是类圈体。吃、喝、消化、排泄、生产、再进食，是一种新陈代谢，也就是线旋。食物链之间是靠这种线旋耦接组成的，与真实的铁链对应，这种线旋耦接好似不是同类圈，但实际它是可以抽象为圈的。这种抽象还可以引进到分子化合键链、价的描述上。孤子演示链的弦论，是坚持把量子看成由弦圈线旋耦接组成的链，再把把这样两根微小链编码耦合起来，成为把物质、能量、信息、生命打包在一起直观思考的经典实物模型的。例如 DNA 属于高分子化合物，是由四种核苷酸连接起来的很长的长链。如果把 A T C G 都换成圆圈表示，DNA 分子简图表示与孤子演示链是非常相似的。

2) 肖钦羨用计算机二进制 0 与 1 的编程说明以太等微观粒子量子，仅类似语言、文字。当然语言文字是能描述任何东西的，但这不是计算机内微观物质操作的机械原理。弦学是 21 世纪世界图景的机械化描述，那么肖钦羨的宇宙计算机能否有类圈体的计算机模型来阐述的呢？有！《三旋理论初探》的“量子分维与分形”一节，就用一种圈态结耦、解耦的典型模型九连环套探讨过这个问题：物质的心脏里的粒子如果是圈态群落组成的，那么它们的圈子组装就象九连环套一样，可以不被破坏地结耦和解耦。这样可以类比九连环套中的密码数学：用 1 表示环在圈上，用 0 表示环从圈上脱下来，一个 N 数 ($N \geq 3$) 连环套，可以用 N 位二进制数码的序列来表示它的解耦和结耦的每步信息，实际这是构成一组密码世界图景的机械化操作。并且联系高能加速器、对撞机之类的实验，监测记录获得的基本粒子的能谱峰值图曲线，这里的横坐标代表时间序列，而纵坐标的能谱起伏曲线正好反映的是各种基本粒子里面圈群结耦或解耦运动编码的实际情况，即能量、物

质、信息迁移的情况。所以利用这种能谱峰值曲线图，可以近似地掌握各种基本粒子里圈态耦、解耦特征的反应情况，从而能从特殊的峰值上了解到是否出现了新的粒子，或何种已知的粒子。而这种编码是很严格的。

3) 从孤子演示链到九连环套，解耦、结耦操作 0 与 1 靠的是自旋。这是把超弦理论与圈量子引力论结合的弦学的发展，即自旋用圈描述，圈也被自旋描述，弦和圈既是一体又不是一体。如单圈的自旋，有 3 类 62 种量子态，QCD 的夸克三种颜色可用三旋的组合编码对应，且旋束态在一个单独的客体上，储能是只有一种自旋不能比拟的。而弦如是单链，其上单圈只能作面旋和线旋，但用双链编码成的孤子演示链，单圈也能作体旋；波粒互变直观且一体。

2011年 4月南京大学教授都有为院士作报告说，21世纪也许是属于“自旋”的新世纪；电子本征另一个自由度“自旋”的利用、调控，将推动社会迈向新的阶段，并预言第四次产业革命即将到来。自旋联系《量子天文学》，据科学家最新研究称，旋转在宇宙最早的恒星可能是疯狂的，它们被称为“旋星”。旋星快速旋转形成并传播重元素遍布宇宙的时期要超过之前的预想，还可产生超出预期的伽马射线暴，这是迄今宇宙中最强大的爆炸。高速旋转导致该恒星内层和外层气体层之间产生重叠，形成的层叠核子反应将产生放射性氦元素，它将释放铁原子和其它重原子碰撞的中子，从而形成锶和钇。在旋星死亡之后，这些重元素将形成新的恒星孕育灰尘云，并最终形成类似 120 亿年前的 NGC6522 球状星团中的恒星。

2、太阳系起源与大型强子对撞机

肖钦羨也许不会赞成旋星产生重元素的说法。肖书的第三章“太阳系的形成”用了全书近 1/3 的篇幅，一气呵成论述了 9 大行星、彗星、小行星、月亮、陨石、石油等的形成，用的仅是“化学元素宇宙丰度表”，加上太阳系的星云气环的泛化。这真是一部伟大的科学畅想书。因为肖说是像放烟花的炮竹，从太阳主体跃迁到天文轨道式的星云气环，在发射能耗尽之后，还能发生大爆炸，生成各种元素粒子。这真需要畅想。我们也来一起畅想吧。即肖的想法不啻等价于今天说的大型强子对撞机 (LHC)，也能揭示未来的 QCD 能源和 QCD 化学。

1) 生成各种元素的原子需要质子和中子。生成质子和中子需要夸克。萨斯坎德说，夸克只有用那些有几英里长的加速器才能发现。今天欧洲的 LHC 周长约有 20 英里。但是还是太小。为了加速一个粒子到普朗克质量，加速器至少要与我们的星系一样大。这正合肖的描述。

2) 因为 LHC 与太阳系的星云气环的对撞机轨道相比，是小巫见大巫。这里远离太阳的高空爆炸与能量来源不证自明；把李政道的夸克-胶子等离子体理论与丘成桐的内空间之形理论结合，更突显 QCD 化学。因为化学元素是以质子排序的，以质子当内空间之形的领军人物，加上卡西米尔平板效应，以碳的 6 个质子做的一对卡西米尔平板效应，与氧的 8 个质子做的三对卡西米尔平板效应比较，作内空间之形的数学，也许能推证出化学元素宇宙丰度的排序，这称为 QCD 化学元素周期表，可解释太阳系星云气环多次化学元素的宇宙丰度排序和重元素的合成。QCD 化学指在夸克、胶子和海夸克层次，能重现原子、原子核层次的一些化学功能。

3) 现在再回到肖说强力像真空吸盘的压力，弱力如漏气；用以太的压力，渗透力、正反以太的分化复合力及流动力去解释强力、弱力、电磁力及引力。肖说这种解释和超弦没关系。但它们和自旋有关系。自旋与类圈体弦学相联。大量的以太从哪里来？陈叔瑄的涡旋物性论说，涡旋和涡旋趋匀，是物质粒子化、实体化、分立化的过程。即涡旋能形成除核心涡旋体外还分离许多环。这种模式不断重复，称为自旋体微旋化。微旋化源源不断产生，能解释无始无终的热源和元素的产生、衰变或转化。涡旋实为类圈体弦学的线旋，微旋化源源不断称为自旋分岔，其一可解释以太；其二可解释强力涉及的真空吸盘编织。

因为根据庞加莱猜想的变换，类圈体可变换等价于管线弦、套管弦。它们各自的纤维捆扎起来，也可以分别叫做管线弦纤维丛、套管弦纤维丛。管线弦纤维丛如果横截面积很大，类似一面墙或屏幕，它的两边是无极性的。即可做成全可透性和全不可透性的。但套管弦纤维丛就不同了，这样的一面墙或屏幕两边有极性，类似亲水性和避水性的两面膜。其次把管线弦及套管弦作纤维看，也能像纺纱织布一样编织成真空吸盘态。这类编织态在原子层次、原子核质子中子层次，对应卡西米尔平板，不用真空吸盘的压力和漏气率，也能解释强力和弱力，以及反德西特空间和 D-膜。

例如 D-膜有黏性。卡西米尔效应也是在两个平板之间有一种吸引力。这类似无极性的全不可透性的平板编织态，放在以太密度、强度很大的原子、原子核层次，当然成强力吸引力。但量子编织态的极性率是有变化的或不确定性的，如平板编织态含有极性，就对应到弱力。这也称为 QCD 卡西米效应，或 QCD 化学，它能说明氧元素超立方 QCD 卡西米效应或卡西米效应 QCD 化学。因为普通化学是以原子不变为前提，卡西米效应 QCD 化学则是一种低碳无核污染能源的以夸克-胶子反应不变元素为前提的化学。

4) 吴新忠博士多次念叨自旋：“采用三旋，不过是把经典的转动方式复杂化到穷尽更多的可能转动；是误以为只要把电子转动纳入三旋模式，就能理解量子自旋。这一点也没有象罗教明或刘显刚那样给出严密论证。在量子层面，根本不是把宏观三旋无限缩小保持同胚不变就能解决的。普通态三旋必须把宏观三旋的拉格朗日量、哈密顿量构造出来，再换用厄米算符做量子化处理，才是量子化的三旋运动；把弦，圈等前沿理论中的旋转示意图，当作对三旋理论普遍有效的支持，但弦，圈的实际量子运动绝对不是示意图中的模式，而是类似示意图中的弦，圈的各种可能运动的量子叠加态，如同费曼画了电子与光子散射的各种作用图”。

吴先生说得也不完全对，如果他能读懂像庞小峰运用孤波的那些非线性量子力学数学方程。那么他读《三旋理论初探》，对书中有近 30 万字的这类数学方程，他不会视而不见。

在吴先生出生的年月，三旋的作者就已经对弦、圈的旋转作过多年的数理探索。吴先生说，没有铅印刊物文字的发布，这些说法不算数。三旋的作者也许早想到这一点。

由于那时长期的阶级斗争、路线斗争，自然科学类似层子哲学的一统天下，不同的观点被视为异端。在多年的投稿不被刊物采用后，1981 年在科学的春天来到时，他从重庆市申请调回家乡四川盐亭县科协工作。因盐亭县政府批准盐亭县科协主办有铅印科普小报《科学知识》的内部刊物公开发行，1982 年 6 月 20 日出版的《科学知识》第 3 版发表了署名达圭写的 2200 余字的《圈态密码与物质心脏的夸克》的文章，这也许是中国铅印刊物第一篇描述类圈体自旋编码颜色夸克的 QCD 文字。但这还只是早在重庆市 18 冶工作的 1974 年时，他写的《基本粒子不是类点体而是类圈体》论文简化的科普版。

5) 张志强先生说量子中国的 21 世纪新弦学，“是归属于物理学前沿理论的西方主流学派，在大爆炸宇宙理论和 M 理论基本物理学思想的引领下创建的独特的三旋理论。对此，无论三旋理论的客观性如何，能够跟进当代物理学前沿理论并能够创建自己的理论学说，这本身已很不容易”。张志强先生说的也不完全对。三旋理论不是在大爆炸宇宙理论和 M 理论基本物理学思想的引领下创建的。肖钦羨先生说他的书“中学生以上文化就可以看懂”，而三旋理论实际就是上世纪五六十年代之间的中学生感悟到的自然秘密。

肖先生反对宇宙大爆炸论，但说一切天体都像重原子模型，一时膨胀和一时收缩。而三旋的作者正是从发散与收缩，推出类似“宇宙蛋”，这与西方科学完全无关。那是 1956 年 11 岁他还属少年时，一次在河边放牛，天快黑了，他害怕，就把河沙往自己身上堆垒，突然他想到宇宙如果充满沙子，后来要变成今天的地球、石头，一定要收缩，即会有类似宇宙蛋的界面，由此埋下对微观天生的兴趣。1959 年大跃进灾荒，饿肚子；分粮，不可无限可分。启发他联系破裂、撕裂等洞穿现象，使他对球体和类圈体存在虚与实的区别，也有了兴趣。

到 1962 年他上高中，要回家背粮到县城中学煮饭，路远的艰辛，更感父母的艰辛。一次他回家背粮，帮母亲放牛，发现牛吃的竹叶与竹壳有相似，产生“早期端上的发育，可从后期端上发育看到”的联想，推证到宇宙蛋与石头，升腾为自然全息的原理。1963 年川大数学系毕业的赵正旭老师来他读的中学教初中，偶然认识，谈到空心圆球内外表面不破能翻转，由此后来自学发现与庞加莱猜想有联系。1965 年他在大学，从《科学通报》了解到国外发现微波背景及宇宙蛋到宇宙大爆炸论的介绍，激起他把竹叶、竹壳与石头和宇宙蛋的类比全息原理写成论文，投稿给《科学通报》。文革开始前，该稿被用挂号信退回，他也很高兴。

从 1968 年开始到大学毕业，他所在的班都在大学实习工厂和武钢参加劳动，他从车间使用的葫芦吊，想到星球的引力理论：把葫芦吊伸长的挂钩链条，看成是星体质量飞散在外面像蓬松的头发和网线类似的引力弦线。这个图像类似由弦构造的黑洞被称作的“毛球”或“弦星”，能推出像牛顿引力公式的数学方程。当时他在实习工厂开滚齿机、铣床，铣齿轮，还从具有内啮合的行星轮系的齿轮运动，联想到在瓶中能向上流出外面的超流现象。还他童年和少年时，父亲在发生月食的几次夜晚，带他和姊妹们到垭口去观看。父亲向他们解释的月食，仍是农村传流的“天狗吃月”。父亲明知不对，却坚持让他们长大去求证。家乡盐亭县天垣盘垭村，传流是盘古王出世的地方，父亲还说盘垭周围的大围坪地貌可供求证。人类盘古文明大爆炸难道联系宇宙大爆炸？但即使退步说，生活永远也是科学创新的老师和向导。

三、把宇宙过去未来内外翻转

1、把肖钦羨与崔琚达、罗正大、陈叔瑄比较

父亲教导不要怕人说错，而要去求证。我们仔细读过崔琚达、罗正大、陈叔瑄的书，也给予过解读。肖钦羨与崔琚达、罗正大、陈叔瑄有很多相似的地方。

1) 罗正大的《不可视觉物质》，主张万有引力，来源于量子外力，是量子斥力。庄一龙也是斥力子论。肖书第 8 章宇宙结构的动力机制，边缘火球圈外面，也还有宇宙压力；肖钦羨称这是如黑洞的宇宙大空洞模型，宇宙的大小是固定的，从外到中心共分五层。边缘第一壳层，分布 90% 的物质，能级低，温度高，是个大火球壳层。中心是第五层，体积占 99%，能级高，温度低。因此肖钦羨的宇宙量子外力和量子斥力不

但有，而且是分开两头操作的。

2) 陈叔瑄的《物性论》，主张物质质量浓缩与弥散的周期性地变换与交换，这与肖钦羨的波粒互变的天体重原子跃迁模型，一时发射和一时收缩相似。但陈叔瑄用的趋匀原理好理解一些，也容易看出破绽。即明明强调密度大、不均匀的中心，要平动地向四周扩散以保持密度均匀、平衡、对称，但后来又说平动存在正反运动，即要自动拐头反向回收物质。道理是涡旋中心速度大，会分散物质；而周边物质多了，也要向中心均匀。其次，涡旋是中心和侧面连续的正反运动，所以也有自动拐头反向回收的意思。但这种大距离正反平动存在能耗，如没有补充，会进行不下去。其实把涡旋说成如类圈体的线旋类似的自旋，不证自明。但肖钦羨自定原理比陈叔瑄更随意：他是直说因为热力学第二定律存在反热力学第二定律，如此对抗作拉锯战，就没有说明不了的困难。这使我们开头读肖书的第一、二章，弄得很糊涂。

3) 这种随意，还有如肖书 187 页公式(4)、210 页公式(1)，把时间 T 分成 t_1 和 t_2 两部分之和，得出 T 的平方等于 t_1 和 t_2 两部分各自的平方之和，即类似于勾股定理。肖钦羨从而轻易地推出许多公式和爱因斯坦时间膨胀公式、长度缩短公式、质量增加公式等一系列重大公式完全一致的结论。但爱因斯坦是以直角坐标和三角坐标的勾股定理作基础的，所以爱因斯坦只看重四维时空。当卡鲁扎和克林推出五维时空的引力与电磁场统一的数学公式后，虽然卡鲁扎和克林的公式很漂亮，但爱因斯坦都迟迟不推荐，直到后来实在找不到数学错误，才推荐发表。这种精神直到今天，1962 年出生的女科学家兰德从爱因斯坦宇宙数学方程，推导出宇宙大爆炸可以循环，所有科学家找不到数学错误下，西方主流科学也承认；叫它为“非高斯宇宙模型”。所以西方主流科学并不存在偏见。

对此肖钦羨回信告诉说：“187 页公式(4)是考虑到时间 T 分成 t_1 和 t_2 后，存在测不准关系，必须用平方和表示。正像你用手把一根竹筷子扒开两节后。两节的长度之和不等于原来筷子的长度。因为断口的地方存在毛刺，使长度测不准”。但这不严密。因为 T 的平方等于 t_1 与 t_2 的平方和，很明显。而 T 的平方等于 t_1 与 t_2 的平方和，跟 T 的平方等于 t_1 与 t_2 各自的平方和是不同的。但肖钦羨的创意却提醒了我们，“点内空间”可用上排场。即如果 t_1 和 t_2 是正交的，如复数的实部和虚部，那么 T 的平方等于 t_1 与 t_2 各自的平方和也成立。即 t_1 与 t_2 之间必须有一个是虚数。《三旋理论初探》探索虚数的几何，就是在点内空间。

4) 如果是这样，那么肖钦羨就和崔珺达搞复合时空论一样，是把爱因斯坦推导狭义相对论方程舍弃的——当 $v > c$ 时公式中的方根会出现虚数而失掉物理意义的变换假设——捡回来。这对不对呢？我们认为是对的，因为相对论与量子论的虚数都属于点内空间。爱因斯坦的错误是坚持唯物论过了头，造成所谓的相对论与量子论不协调之说。但爱因斯坦至死都没有认识到这一点。也许只有费曼和彭罗斯有认识。如费曼说的时间倒流- t ，类似在点内空间里运动。彭罗斯主张扭量是复数的几何描述，是穿过黎曼球面的投影。据《黎曼博士的零点》一书介绍，庞加莱也许是最早研究过点内空间的人，这是个有限而无界的空心圆球宇宙模型：离开圆心，走近圆周，你就变得越小。这实际类似“点内无内，点外无外”。比较肖钦羨和崔珺达捡回舍弃类似 $v > c$ 的变换假设，肖无意而崔有意，但两人都还没具备有点内空间的概念。

5) 但吴新忠推崇崔珺达，说费曼以后的物理学都不太牢靠；说假如崔君达的复合时空论能改造成为路径积分形式，甚至费曼路径积分都会被修改。但吴目前没有把定性考虑清楚。他认为，既然符合相对论的弦论能从得出快子存在的错误弦论改进而来，崔君达的复合时空论虽然违背相对论，但不排除改进为符合相对论的新假说的可能性；崔君达对于真空能量的理解在直觉上优于量子场论与弦论。看来像吴新忠这些在科学殿堂内的新人，也不理解点内空间的概念，就不能苛求肖钦羨、罗正大、庄一龙他们了。崔君达的复合时空论受惠于俄国费多罗夫等人对晶体空间群的 230 种分类的启示，在舍弃相对论中爱因斯坦的那个恒等变换假设之后，才推出空间手征性带来的 16 重的时空复合。但这种类似晶体分类的复合时空，明显局限在点外，并不是芝诺坐标能揭示的代表自然事物在点外、点内的多时空环路及方向性。

2、肖钦羨宇宙大空洞模型内外大翻转

1) 肖钦羨说我们之间是两个体系。如果他不冒火，我们说当代主流宇宙论实际是肖钦羨的宇宙大空洞模型，作类似空心圆球内外表面的翻转，也才和“宇宙没有始终，至小无内，至大无外”的中国传统宇宙哲学一致。我们探索宇宙都类似作拼图游戏，取长补短都有收获。

2) 肖钦羨说的恒星演化方向是从红巨星演化到主序星，这类似在点外。肖宇宙的未来从点外翻转到点内后，恒星演化方向不也就是从主序星演化到红巨星。此图景的肖钦羨宇宙大黑洞的原壳层，从第一到第五的次序也没有变。罗正大、庄一龙的斥力论也属可翻转。

3) 俄罗斯科学院核能研究所的道库恰也夫教授认为，一部分黑洞可以拥有复杂的内部结构，从而允许光子、粒子甚至行星围绕其中央的奇点运动。只要一个旋转中的带电黑洞质量足够大，它便能削弱它向其视界之外施加的强大引潮力。在一个黑洞内侧的视界以内，可以允许粒子甚至行星的存在。这一区域的物质得

以免于被黑洞摧毁，从四周绕行的光子中得到光和热，并从黑洞的奇点得到能量。而且这种被两道严密的视界和外部世界分隔开的黑洞内部区域，可以证明自给自足型外星人存在的可能性；并在星系核心的大质量黑洞内部生活。由于视界的阻挡，外部世界完全观察不到它们的存在。道库恰也夫作的这种计算，也适用于翻转后的肖钦羨黑洞，他说黑洞内生存的外星人，不就等价于类似我们的地球人。

3、QCD 大应用，太阳能不是核能吗？

1) 研究自然，认识自然，也为利用自然。读《量子天文学》使我们浮想联翩。未来低碳无核污染的能源称为 QCD 能源，它源于量子色动力学 (QCD)，我们称 QCD 为量子圈态自旋编码，它与我们对类圈体的三种自旋与弦膜圈的了解有关。说此，我们是班门弄斧。肖钦羨写《量子天文学》有出于反太阳能是热核能的想法。肖钦羨是专家，他 1958 年上中山大学读的是原子核物理专业，毕业后在兰州研究所搞的也是该专业。肖钦羨的书，今天仍至少代表着我国中山大学和兰州大学近代物理学教育水平的一个方面。我们 1965 年上大学是学机电的，自知热核能专业基础不如肖先生。我们理解肖先生为何不谈 QCD，文革前我们进的大学，那时原子物理学、原子核物理学，根本就不讲夸克和 QCD。

肖说太阳能不是热核能，其部分也许有对的。道理是，肖说的红巨星气体环、天体的能级或光环，如果等价于今天说的大型强子对撞机，太阳能当然就不主要是热核能，其证明之一就是太阳能有 QCD 能源的低碳无核污染的特征。其二，核反应先于夸克和 QCD 的发现，称为原子物理学、原子核物理学和放射性化学。原子弹、氢弹与和平利用核能发电，是众所周知它的一大成就。QCD 是属强子对撞机打破质子后的夸克、胶子等层次。肖钦羨固守的能源机制，虽是以太波粒互变的量子经典之说，但他也很前卫：他一方面不反对核能的存在，一方面却用反对太阳能是热核能来建立整个天文学的办法，暗中迎合了类似 QCD 机制，解释了石油在红巨星气体环的生成；据此他挺的王洪成和许驭“水变油”，当然不是核反应机制。

2) 日本高科技虽发达，也难防 2011 年九级大地震产生海啸引发核电泄漏，造成的空前核放射性污染灾难。而有丰富石油资源的利比亚动乱，也可看成是石油高碳引发的另一种血腥的人道灾难形式的碳污染。所以低碳无核污染的 QCD 能源，是 21 世纪新弦学展望的理论与技术结合的互惠模式。但用大量生产微小夸克球的办法，向第三世界分送 QCD 能源，需要大型强子对撞机等设置，民间研究者没有这个条件，就不要谈了。而外源性 QCD 指 QCD 荷云流，有比夸克层次更大的空间的影响：这像放风筝，利用气流做一些力所能及的事，即 QCD 也可以和与普通化学、物理的结合，这得力于中国的“贝克勒尔”马成金工程师的发现。

3) 事关 1982 年 6 月 20 日，盐亭县科协主办的《科学知识》铅印科普小报第 2 期发向全县，第三版署名达圭写的《圈态密码与物质心脏的夸克》虽是打插边球，夹在 90% 宣传农村科普知识的文章中间，但还是引起盐亭县农机局马成金的注意。他反复看后熬了两年，1984 年等不住了，他找到盐亭县科协主席张应芄先生，要公开他的水燃烧实验。这是他从 1960 年在绵阳农机校读书时就开始的探索。张应芄等人看到的实验是，在一大碗清水中放入极少量的食盐和钾配制的引发剂，立马着燃烧干这碗水。由于引发剂还含有甲酚、硝基苯等物质，实验有爆炸和毒气的危险性，张应芄劝其不要再做。马成金的实验才刚开始揭开外源性 QCD 能源利用的一角，但后来被王洪成的“水变油”宣传误导了。马成金本来反对水能变油的说法，但他的实验如无风天放风筝，成功率像有量子不确定性。而油水乳化加改配的引发剂，成功率 100%，有公司几次要高价要买他的发明，太有引诱力，使他更是想自家去创收。

4) 真假 QCD 反应机制探索如此活跃，肖钦羨可以称它为波粒互变；江兴流说它是零点能、声子内聚极化耦合、共振势垒贯穿、四面体电子轨道动力学畸变、涡旋绕场冷核聚变；郑烈统称它为冷原子泛系研究；熊成堃刘良俊说它是太极子物理，等等。哈工大化学与能源所的邵延斌先生说，他在哈工大看过王洪成的“试验表演”；本着科学的态度，不能肯定其实验的真实性，也不能轻易否定之，使他一直保持对此事的关注。由此他注意到我们发表的关于 QCD 的文章。这是我们咬住马成金科协实验不放松，把 QCD 引向卡西米平板效应量子编织态，探索氧、碳、钾等元素的质子群 QCD 结构不同于其冷核裂变或聚变反应的结果。

再说肖钦羨将波粒互变泛化，也有其数理困难。其一，如球面体扩张与收缩，间断时间过大，或过短，都难与实际相合。其二，扩张与收缩抽象到一维，如白羊和白羊同时相对从同一座桥过河，如何处理。其三，将波粒互变泛化，也得将以太泛化。在原子半径的范围内，速度即使是光速，如作直线运动，储能是不能很大的；自旋如果只是一种旋，也不行。

庞加莱猜想的证明，是广东籍人丘成桐、朱熹平的追求。肖把波粒互变，说成类似球面能扩张与收缩的形象思维，我们也赞成。在《求衡论》17 页一节中，类似也用在双缝实验的解释上。而且这里把“扩张与收缩”看成是庞加莱猜想的特征；并说庞加莱猜想与不确定性原理，有对应等价之处。庞加莱猜想把形状与操作、微观与宏观统一起来，已成为把握前沿物理科学的命根之一。肖作为广东人如熟悉庞加莱猜想，《量子天文学》也许不是现在的样子。

5) 我们出生在四川边穷的农村,是新中国把我们送上大学;只想多学些知识,报答祖国。但大学赶上文革,没有学多少专业,毕业也不是干自己的专业,且都在基层工作。因此也许命运比肖差;肖学专业,干专业,《量子天文学》也接近他的专业。因此我们只是业余在与他对话。这只是因我们从小对微观有天生的兴趣,业余几十年来,关注前沿微观全球的研究动向,进行自学。由于毕业不让干专业,且在基层奔波,对业余也就看得是第二生命。

知微见著,小时候看母亲帮助我们钉衣服上掉落的纽扣,穿过布片的针线往往容易打结;到上大学时,我们自己用针线裁被子,发现这种因摩擦打结很不容易根除,而且在线打扭结的地方,还会缠结集起许多线圈。这种现象联系引力场的度规线、宇宙弦,使 QCD 三旋更是左右逢源。所以如果说这是弦论,那么使用过针线的中国亿万母亲,都是“弦论学家”。

6) 利用 QCD 化学分析元素周期表、夸克、胶子和海夸克,海夸克类似肖书说的以太。如果以太来源是微观客体自旋周期的分岔,这种释放能量的结构衍变----这类似复印机的信息复印的自复制,物理学称为量子场;它像信息既是质量又不是质量,既是能量又不是能量。这还类似费曼的粒子杂耍模式的量子生育场论观;这种海夸克标记的以太,还有类似圈态双螺旋孤波演示的传递作用,体现了肖书说的波粒互变既是粒子又是波动传递,既是粒子又是场,既是粒子的间断又是场的连续,它可以解释强力、弱力、电磁力及引力。在马成金首创之外, QCD 弦膜圈说与化学、物理结合,还可例举几种不属大型强子对撞机之类的应用:

A) 太阳能电池化学晶体板开发,是肖钦羨太阳能不是热核能的典型 QCD 能源应用。

B) 肖钦羨星系红移可以正反跃迁,对应前苏联物理学家 1968 年曾作过的逆多普勒效应预言, QCD 化学可开发隐身衣技术。这高锟的光纤应用,已走了第一步。上海理工大学庄松林院士、陈家璧教授等用硅研制的“光子晶体”的人造纳米结构的晶体物质,通过向这个光子晶体折射棱镜发射激光束,首次在光学领域证实多普勒效应的逆转现象,大有可为。

C) 开发量子计算机的 QCD 研究,德国科学家瑞普、斯派克特等已将单个光子的量子状态写入一个铷原子。此前实现的是光子和数千个原子集合之间的信息交换。而这次是将一个铷原子放在一个光学共振器的两面镜子间,接着使用非常微弱的激光脉冲让单光子进入该共振器中。共振器的镜子将光子前后反射多次,大大增强了光子和原子之间的相互作用。实现用单原子存储量子信息的好处是:单个原子很小,存储在原子上的信息能被直接操作,这一点对于量子计算机内逻辑操作的执行来说非常重要,它可以核查发现存储出错,而且光和单个原子之间的相互作用,可让量子计算机内的更多原子能相互联网。

7) 21 世纪新弦学如果来源于量子圈态自旋编码 QCD 创新,它的目标仍应该是,创先不骄,兼收并蓄,自主发展。而如果把 QCD 弦膜圈说拱手让给西方,是自不量力。如果拿书泄气,《非线性量子力学》、《量子天文学》的书赚钱了吗?庞小峰、肖钦羨致富了吗?大家都是义工,还根本掌握不了纯基础前沿科学被英语霸占的话语权。我国经历过长期文革两派斗争的困扰,好不容易才平息下来。有遗风也能理解。我们同志之间的探讨,还只是给掌握了英语的我国专业人士提供一些参考。所以鲁晨光先生说:“观点都认为自己的发现正确、重要,但是不可能都对。自己把自己的东西说清楚,让时间和历史来检验,因此不赞成相互贬低”。

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Treatment of Nile tilapia, *Oreochromis niloticus*, using Neem leaf extract against *Aeromonas hydrophila* infection

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Abstract : Nile tilapia *Oreochromis niloticus* was injected 1×10^8 cfu/ml with a strain of the Gram- negative bacterium, *Aeromonas hydrophila*. After inoculation, the disease signs began on the 5th day as a haemorrhagic spot at the site of injection and the lesion subsequently progressed in size, inflammation of the anal opening and asitis. After this period, the mortality of infected group was $10 \pm 5\%$ daily; hence, they were dip treated with an aqueous *Azadirachta indica* leaf extract at 1g/l for 10 min. daily for 30 days until the lesions healed completely. The hematological and biochemical parameters of infected and control fishes were monitored on the 10th, 20th and 30th day. The white blood cells WBCs: 10^4mm^{-1} counts significantly increased on the 10th day of treatment and in treated fish on the 30th day. The red blood cells count RBCs: 10^6mm^{-1} significantly decreased on the 10th day. The hemoglobin Hb and hematocrit PCV decreased significantly in infected fish and in treated fish on the 10th day and this value returned to the normal value on the 30th day. serum protein level significantly increased in treated fish. In infected fish it decreased significantly. serum glucose, cholesterol and serum calcium levels were significantly lower in control fish when compared with treated fishes. In infected fishes levels of them continued to decrease significantly, The results indicate that after dip treatment *A. indica* aqueous leaf extract fishes exhibited a significant increase in serum glucose, cholesterol, total protein, RBC, Hb and PCV. the fish treated and nearly become normal after infection with *Aeromonas hydrophila* these for the treatable and immunestimulant action of *A. indica* aqueous leaf extract .

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Key words: Nile tilapia *Oreochromis niloticus*-, *Aeromonas hydrophila*- hematological - biochemical parameters- aqueous *Azadirachta indica* leaf extract.

1. Introduction

Aeromonas hydrophila causes disease in fish known as “Motile *Aeromonas* Septicemia” (MAS), “Hemorrhagic Septicemia,” “Ulcer Disease,” or “Red-Sore Disease.” The many synonyms of this disease relate to the lesions caused by this bacterium which include septicemia where the bacteria or bacterial toxins are present within numerous organs of the fish, and ulcers of the fish’s skin. *Aeromonas hydrophila* is a ubiquitous gram-negative rod-shaped bacterium which is commonly isolated from fresh water ponds and which is a normal inhabitant of the gastrointestinal tract. The disease caused by this bacterium primarily affects freshwater fish such as catfish, several species of bass, and many species of tropical or ornamental fish. Many have considered *Aeromonas hydrophila* to be an opportunistic pathogen. This seems like a contradiction

in terms, since most bacteria which are termed “opportunistic” usually do not cause disease unless other factors are involved, and those bacteria which are considered a “pathogen” can cause disease regardless of other factors. However, the term “opportunistic pathogen” conveys that *Aeromonas hydrophila* always is capable of producing disease if given the chance. wound or abrasions facilitate infection by opportunistic pathogens such as *Aeromonas hydrophila* (Ventura and Grizzle, 1998; Elliott and Shotts, 1980). Generally, the external symptoms of disease are hemorrhagic spots in the body. This requires information on severity of problem in aquaculture then mention of potential for antibiotic resistance using current treatments (Aoki and Kgusa, 1971). Boremann (1989) reports the occurrence of an antibiotic resistant strain of *A. hydrophila* in mirror carp (*Cyprinus carpio*) isolated from skin, organs (mixed samples of heart, liver, pancreas and spleen) and intestinal tracts against 50 mg/l ampicillin, 30 mg/l chloramphenicol, 30 mg/l kanamycin or 20 mg/l chlortetracycline. Nevertheless, despite

various treatment methods (Das and Das, 1993) to date no effective control measure is available (Anbarasu et al., 1998) for septicemic conditions caused by *A. hydrophila*.

Neem, is known for its antiviral, antibacterial and antifungal properties and has been aptly known as the village dispensary for the past 2000 years (Biswas et al., 2002). It is referred to by the US National Academy of Sciences as “a tree for solving global problems” (Schmutterer, 1995; Singh et al., 1996) since it is a rich source of unique natural products for development of medicines against various diseases (Govindachari, 1992). The neem leaves contains nimb, nimbinene desacetylnimbinase, nimbadiol, nimbolide and quercetin. Oral administration has even been attempted to treat fish infected with epizootic ulcerative syndrome (EUS) (Lilley et al., 2000). Consequently, the present study describes the potential recovery of *O. niloticus* infected with *A. hydrophila* after herbal treatment with neem leaves water extract and associated hematological and some biochemical changes.

2. Materials and methods :

2.1. Bacterial strain :

A. hydrophila was obtained from the Hydrobiology Department National Research Center. It had been identified after . Subcultures were maintained on tryptone soya agar slopes at 5 °C and routinely tested for pathogenesis (Joseph and Carnahan, 1994) by inoculation into apparently healthy *Oreochromis niloticus* . A Stock culture in tryptone soya broth was stored at -20 °C .

2.2. Fish

Cultured Nile tilapia *O. niloticus* (average weight = 40 ± 10 g) collected from a private fish farm at Kafer El-Sheikh Governorate. The fish were transported to the laboratory in plastic bags (5 l) filled with oxygenated water and acclimatized in a stock tanks to laboratory conditions for 2 weeks under normal conditions (23 ± 2 °C). They were fed with commercial fish ration throughout the period of study and water was changed once a day.

2.3. Growth of *A. hydrophila* :

A. hydrophila was cultured on tryptone soya agar and harvested in tryptone soya broth . The broth was incubated overnight in a shaker for 12 h at 20°C and centrifuged at 10,000 rpm for 20 min at 4 °C; the supernatant was discarded and the bacterial pellet was

washed three times with phosphate buffered saline (pH 7.2) and prepared to 10⁸ cfu/ml as determined using a Neubauer hemocytometer slide (Yadav et al., 1992).

2.4. Infectivity experiments

After 2 weeks of acclimation, fish (100) were injected intraperitoneally IP with 100 µl of *A. hydrophila* at a concentration of 10⁶–10¹⁰ cfu/ml to induce ulcers in order to determine the LC50 value for experiments.

2.5. Preparation of aqueous *Azadirachta indica* (Neem) leaf extract :

Azadirachta indica (*A. indica*) leaves were obtained from the nurseries of the Ministry of Agriculture , dried and finely chopped, then dissolved in tap water, at a concentration of 500 g of dried leaves per liter of water, for 24 h at room temperature (as described by Cruz et al., 2004). The mixture was filtered and the extract (500 g/l) was used immediately in the experiments.

2.6. Experimental design :

Fish were divided into three groups of 10 each in triplicate, as follows:

Group 1: control fish injected with distilled water.

Group 2: ulcer induced fish, non treated.

Group 3: ulcer induced and dip treated with 1 g/l aqueous neem extract (15 min /day for 30 days).

2.7. Collection of blood samples

Approximately 0.05 ml of blood was collected in with a 20-gauge needle from six fish in each group caught randomly on the 10th, 20th and 30th day . The temperature of the samples was kept at 4 °C; EDTA and an aqueous solution of heparin were used as anticoagulants . To allow complete healing of the site, the samples were collected from either the right or left side of the fish on a given day. Half of the blood sample was used for hematological examination and the remaining half was stored at 4 °C for further biochemical analyses.

2.8. Hematology and biochemical indices:

The red blood cell counts (RBC: 10⁶ mm⁻³) were determined in a 1:20 dilution of the blood sample in Hayem's solution and the white blood cell counts (WBC: 10⁴ mm⁻³) from a 1:200 dilution of the blood sample in Turke's solution with a Neubauer

hemocytometer. The average of triplicate microhematocrits were used to determine the red blood cell volume at 10,000 rpm for 5 min (PCV: %) (Larsen and Snieszko, 1961). Hemoglobin (Hb: g/dl) was determined by the cyanhemoglobin method. A 20 μ l blood sample was drawn from a heparinized capillary tube and mixed in 5.0 ml of cyanhemoglobin reagent (Hycel). Hemoglobin concentrations were determined at 540 nm with a Beckman DU spectrophotometer (Yokoyama, 1960; Larsen and Snieszko, 1961; Larsen, 1964; Hesser, 1960; Houston, 1990). The packed cell volume counts (PCV: %) were read after centrifugation for 10 min. After reading the hematocrit, the packed erythrocytes were discarded and the plasma was stored at -12°C , and subsequently the biochemical indices were determined with a Hitachi 704C instrument. These included total protein (TP: g/dl), glucose (GLO: mg/dl) and cholesterol (CHO: mmol/l) which were determined spectrophotometrically in the UV area, whereas the calcium contents (CAL: mmol/l) were determined by flame emission photometry (Hawk et al., 1954).

2.9. Statistical analysis

Data are presented as mean \pm S.D. of the number of fish per group. Hematological and biochemical parameters were analyzed using the student's t-test to compare the difference in values between infected, herbal treated and the normal (control) fish

3. Results :

3.1. Clinical signs of *Oreochromis niloticus* after infection:

At the site of administration (10^8 cfu / ml) of *A. hydrophila* pathogen, ulceration commenced as sloughing off of scales, followed by the occurrence of a hemorrhagic spot all over the body which progressed to form an epidermal lesion (Fig 1). The lesion expanded in diameter and depth affecting the muscles (Fig 2). and infected fish died within 20 days. After *A. indica* dip treatment, the lesion decreased in diameter before healing completely treated after 30 days. Fish dipped in aqueous *Azadirachta indica* (Neem) leaf extract showing some nervous manifestations and respiratory distress expressed as increased opercular movement surfacing and gulping the atmospheric air .



Fig (1) *Oreochromis niloticus* showing hemorrhagic spot all over the body with sloughing of scales after IP injection of *A. hydrophila*



Fig (2) *Oreochromis niloticus* showing abrasions on the dorsal muscles after injection of *A. hydrophila* with exthiophalmia

Table 1: the results of the hematological parameters of infected and treated *O. niloticus*

Groups	WBCs (10^6mm^{-3})			RBCs (10^6mm^{-3})			Hemoglobin (g/dl)			PCV (%)		
	10 days	20 days	30 days	10 days	20 days	30 days	10 days	20 days	30 days	10 days	20 days	30 days
Control	3.15 ± 0.31	3.15 ± 0.31	3.15 ± 0.31	2.31 ± 0.16	2.31 ± 0.16	2.31 ± 0.16	10.37 ± 0.61	10.37 ± 0.61	10.37 ± 0.61	33.60 ± 3.20	33.60 ± 2.20	33.60 ± 3.20
	3.86 ± 0.31	4.16 ± 0.32	4.72 ± 0.22	1.75 ± 0.10	1.62 ± 0.10	1.67 ± 0.12	5.63 ± 0.60	6.09 ± 0.75	5.60 ± 0.42	18.57 ± 0.54	18.18 ± 0.66	18.83 ± 1.60
Treated	3.60 ± 0.20	3.07 ± 0.27	3.32 ± 0.30	1.68 ± 0.21	1.85 ± 0.15	3.37 ± 0.30	5.77 ± 0.74	8.43 ± 0.37	10.43 ± 0.67	20.23 ± 3.8	21.90 ± 3.47	32.37 ± 1.99

Table 2 : results of the biochemical parameters of infected and treated *O. niloticus*.

Groups	Total protein (g/dl)			Glucose (mg/dl)			Cholesterol (mmol/l)			Plasma calcium (mmol/l)		
	10 days	20 days	30 days	10 days	20 days	30 days	10 days	20 days	30 days	10 days	20 days	30 days
Control	3.34 ± 1.32	3.34 ± 1.63	3.33 ± 1.34	119.0 ± 16.93	119.2 ± 14.82	118.6 ± 13.71	10.0 ± 2.25	10.2 ± 2.55	10.0 ± 2.23	4.88 ± 0.34	4.74 ± 0.23	4.34 ± 0.34
	2.76 ± 0.69	2.33 ± 0.61	2.38 ± 0.39	64.0 ± 11.97	60.07 ± 11.31	56.10 ± 9.56	4.37 ± 1.03	3.92 ± 1.07	4.31 ± 1.21	3.30 ± 0.46	2.93 ± 0.54	2.88 ± 0.32
Treated	3.61 ± 0.96	4.09 ± 0.88	6.11 ± 0.88	77.63 ± 15.57	86.70 ± 14.38	121.27 ± 18.95	6.11 ± 1.55	6.95 ± 1.01	10.56 ± 1.04	3.62 ± 0.39	4.55 ± 0.70	5.02 ± 0.75

3.2. Progression and healing of ulcers with *A. indica* extract dip treatment :

At a concentration of 10^6 cfu of *A. hydrophila*/ml, the mortality was 10% while at 10^{10} cfu/ml the mortality was 90% after an incubation period of 10 days. Hence, 10^8 cfu/ml, the LC50 calculated over a period of 10 days, was chosen since it was found to be optimal and ensured 50% survival (Brenden and Huizinga, 1986). The hematological and biochemical changes were monitored after 10, 20 and 30 days, after manifestation of the disease and they were compared with the control values.

3.3. Hematology results :

The values of the various indices for the *A. hydrophila* infected, *A. indica* aqueous leaf extract dip treatment and control fish are indicated in table (1.) The WBC level of infected nontreated fish initially increased from a control value of 3.15 ± 0.14 to 3.86 ± 0.31 on the 10th day. After the 20th and the 30th day, the WBC level in infected fish significantly increased to a maximum of 4.16 ± 0.31 and 4.72 ± 0.22 , respectively. The treated fish registered a slight decrease in the level of WBC on the 10th day (3.60 ± 0.20) and on the 20th and the 30th day further decreased to 3.07 ± 0.27 and 3.32 ± 0.30 , respectively. On the other hand, the RBC count in infected fish came down from the control value of 2.31 ± 0.16 to 1.75 ± 0.10 on the 10th day and attained the maximum decrease on the 20th and 30th day as 1.62 ± 0.10 and 1.67 ± 0.12 , respectively. In the *A. indica* treated fish, the RBC increased from the minimum of 1.68 ± 0.12 (10th day) to a maximum of 3.37 ± 0.30 (30th day). The hemoglobin level in infected fish came down from the control value of 10.37 ± 0.61 to a minimum of 5.63 ± 0.60 on the 10th day and registered a further slight decrease on the 30th day (5.60 ± 0.42). On the other hand, the Hb level in the treated fish slightly increased from the 10th day to a maximum of 10.43 ± 0.67 (30th day). Hemoglobin contents also appeared to show a decreasing trend in infected fish and in treated groups it increased slightly. The hematocrit level in infected fish initially decreased from the control value of 33.60 ± 3.20 on the 10th day (18.57 ± 0.54). The hematocrit level in infected fish significantly decreased ($P < 0.001$) to a minimum of 18.18 ± 0.66 and 18.83 ± 1.60 (20th and 30th day), respectively. Although the hematocrit level decreased in infected fish, in the treated fish it increased slightly ($P < 0.05$) on the 10th day (20.23 ± 3.8) whereas on the 20th day it further increased ($P < 0.01$) to 21.90 ± 3.47 and reached near control value (32.37 ± 1.99) on the 30th day ($P > 0.05$).

3.4. Biochemical results :

. The serum total protein level in infected fish initially decreased from the control value of 3.34 ± 1.32 to 2.76 ± 0.69 on the 10th day table (2), whereas it significantly decreased ($P < 0.01$) to a minimum of 2.33 ± 0.61 and 2.38 ± 0.39 on the 20th and 30th day. The treated fish registered a slightly increased level of serum protein on the 10th day 3.61 ± 0.96 , whereas on the 20th and 30th day it further increased to 4.09 ± 0.88 and 6.11 ± 0.88 , respectively. The serum glucose level in infected fish decreased significantly ($P < 0.01$) from the control value of 119.0 ± 16.93 to 64.6 ± 11.97 on the 10th day. After the 20th and 30th day, the glucose level further significantly decreased ($P < 0.001$) to a minimum of 60.07 ± 11.31 and 56.10 ± 9.56 , respectively. The treated fish registered a significantly increased ($P < 0.01$) level of glucose on the 10th day (77.63 ± 15.57) and on the 20th and 30th day it further increased to 86.70 ± 14.38 and 121.27 ± 18.95 ($P < 0.01$ and $P > 0.05$), respectively. The cholesterol level in infected fish initially decreased from the control value of 10.0 to 4.37 on the 10th day. After the 20th and 30th day, the cholesterol level significantly decreased ($P < 0.001$) to a minimum of 3.92 and 4.31, respectively, in the infected fish. The treated fish registered a slightly increased level of cholesterol on the 10th day (6.11 ± 1.55) and on the 20th and 30th day it further increased to 6.95 ± 1.01 and 10.56 ± 1.04 , respectively. The serum calcium level in infected fish initially decreased from the control value of 4.88 ± 0.34 to 3.302 ± 0.46 on the 10th day. After the 20th and 30th day, the plasma calcium level significantly decreased ($P < 0.001$) to a minimum of 2.932 ± 0.54 and 2.875 ± 0.52 , respectively. In the treated fish, the value increased slightly on the 10th day (3.62 ± 0.39), whereas on the 20th and 30th day it further increased 4.55 ± 0.70 and 5.020 ± 0.75 , respectively.

4. Discussion

The clinical signs of fish injected with *A. hydrophila* were At the site of administration of *A. hydrophila* pathogen, ulceration commenced as sloughing off of scales, followed by the occurrence of a hemorrhagic spot all over the body which progressed to form an epidermal lesion. The lesion expanded in diameter and depth affecting the internal muscles these results nearly agree with Sharifuzzaman, and Austin, (2009). Medicinal plants are environment friendly containing diverse biologically active principles. Comparisons of the sensitivity of different fish species to neem are questionable, since the amount of active compounds in a given weight of neem varies widely with the part of the plant, its place of origin or even the individual tree (Luo *et al.*, 1999 and Winkler *et al.*, 2007) The WBC levels in infected fish initially increased from the control level and after the 20th and 30th day the WBC count significantly increased to a maximum whereas in treated fish then decreased during the same period.

Erythrocytic necrosis virus (ENV) infected fish have also shown abnormal, dense, compact WBCs that reached the highest level for 72 h (Haney *et al.*, 1992). In almost all infected fishes, the homeostatic processes are extended beyond the normal limits due to stress (Pickering, 1981). In the *A. indica* treated fish, the RBC count increased ($P > 0.01$) from the 10th day to the 30th day. The hemoglobin level in infected fish came down from the control value on the 10th day to the 30th day but the Hb level in the treated fish increased slightly by the 30th day. The decreased hemoglobin content may be brought about as a result of the swelling of RBC as well as poor mobilization of hemoglobin from the spleen and other hemopoietic organs in *Ictalurus punctatus* (Scott and Rogers, 1981). These facts support the present finding that the significant decrease in erythrocyte and hemoglobin content is possibly due to hypochromic microcytic anemia caused by the bacteria. In the *A. indica* treated groups, reversible changes occurred since the levels recovered after 30 days. Scott and Rogers (1981) showed a significant increase of hemoglobin at Stressed-Sampled 48 h (SS48) and Stressed-Sampled 72 h (SS72) hypoxia leading to elevated oxygen carrying capacity of the individual erythrocyte *I. punctatus*. Decreased RBC counts, hematocrit and hemoglobin concentration indicate that RBCs are being destroyed by the leucocytosis activity in an erythrocytic anemia with subsequent erythroblastosis (Haney *et al.*, 1992). An increase in hematocrit has been reported as a result of oxygen deficiency (Holeton and Randall, 1967; Wood and Johansen, 1972; Swift and Lloyd, 1974; Kirk, 1974). In our experiments, the hematocrit level significantly decreased ($P < 0.001$) in infected fish on the 20th and 30th day and in the treated fish increased. In addition, other studies have reported that there is a significant reduction in many other parameters as well. For instance, the pearl spot fish *Etroplus suratensis* when infected with EUS becomes anemic followed by a significant reduction in RBC, Hb and PCV (Pathiratne and Rajapakshe, 1998). Mitra and Varshney (1994) obtained *Catla catla* and *Labeo rohita* with fungal infection from fish farms and the infection resulted from ulceration followed by hemorrhage on the dorsal surface of the body. Chemical treatments with copper sulphate, potassium permanganate and common salt solution did not yield positive results. Significant recovery was achieved with repeated intramuscular injections of the homeopathic drugs heaper sulfur and arnica spray.

The serum protein level initially decreased in infected fish from the control value on the 10th, 20th and 30th day. Total plasma protein also increased due to the destruction of RBCs and the resultant release of cell contents into the blood stream (Haney *et al.*, 1992). Scott and Rogers (1981) reported that the plasma protein

values did not vary significantly ($P > 0.05$) from that of the control in infected fish. The total erythrocyte and leukocyte counts in Stressed-Sampled (SS) and stressed-reacclimatized (SR) fish did not vary significantly from the control. The treated fish in our experiment registered a slightly increased level of serum protein between the 10th day to the 30th day. The treated fish registered a significantly increased level of glucose on the 30th day, which was similar to the control fish values. The cholesterol and calcium levels significantly decreased from the 10th day to the 30th day in infected fish but the treated fish significantly increased.

Herbal medicines employed to dip treat fish against *A. hydrophila* pathogens typically contain soluble and particulate components, both of which may generate protective immune responses. The results indicate that after dip treatment (*A. indica* aqueous leaf extract) fishes exhibited a significant increase in serum glucose, cholesterol, total protein, RBC, Hb and PCV. The fish treated and nearly become normal these for the treatable and immunestimulant action of *A. indica* aqueous leaf extract.

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Isolation of Bacteria From Engine Oil Contaminated Soils In Auto mechanic workshops in Gwagwalada, Abuja,FCT-Nigeria.

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Abstract: Isolation of bacteria associated with engine oil contaminated soil was carried out. Five different mechanic workshops within Gwagwalada were selected and five soil samples were collected from each site. 5 grams of contaminated soil was added to 50ml of the enrichment medium and was incubated at 30°C for 5 days. The soil samples from the mechanic workshop were enriched using Bushnell- Haas medium and then subsequently plated out on nutrient agar plates for 24 hours at 30°C. Spread plate method involving the use of serial dilutions was employed for the isolation of the bacteria. The number of viable bacterial count were determined and expressed in colony forming units (cfu). The bacterial species isolated were *Pseudomonas sp.*, *Micrococcus sp.*, *Serratia sp.* And *Bacillus sp.* *Bacillus sp.* was the most dominant showing a 100% occurrence, followed by *Micrococcus* and *Pseudomonas sp.* each with 80% and lastly *Serratia sp.* with the least of 40% .On the whole the data suggests that of the isolates gotten, *Bacillus sp.* are most adapted to conditions present in soils contaminated with used engine oil and hence could be exploited in bioremediation activities.

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1. Introduction

Used/waste engine oil is defined as used lubricating oils removed from the crankcase of internal combustion engines (Jain *et al.*, 2009). Before they are used, they consist of hydrocarbons, (80 to 90% by volume) and performance enhancing additives (10 to 20% by volume). Engine oils are altered during use by vehicles, motor-bikes, generators and other machinery because of the breakdown of additives, contamination with the products of combustion and the addition of metals from the wear and tear of the engine. It is recognized that the major components consist of aliphatic and aromatic hydrocarbons such as phenol, naphthalene, benz (a)anthracene, benzo (a)pyrene, fluoranthene, lead, cadmium and other potentially toxic metals (Jain *et al.*, 2009).

Used motor oil can cause great damage to sensitive environments and soil microorganisms. Substantial volumes of soil have been contaminated by used oil in many countries of the world, especially industrialized nations. High concentration of aliphatic, polycyclic aromatic hydrocarbon and heavy metals contribute to the inherent toxicity of used oil (Vasquez– Duhalt and Bartha, 1989).

Large amounts of used engine oil are liberated into the environment when the oil from motor cars, motor-bikes, generators etc is changed and disposed

into gutters, water drains, open vacant plots and farmlands, a common practice by motor and generator mechanics (Odjegba and Sadiq, 2002).

Spent engine oil, when present in the soil creates an unsatisfactory condition for life in the soil, which is due to the poor aeration it causes in the soil, immobilization of soil nutrients and lowering of soil pH (Atuanya, 1987). Various contaminants such as used engine oil and heavy metals have been found to alter soil biochemistry, which includes alteration in soil microbial properties: pH, O₂ and nutrient availability (Atuanya, 1987; Brookes, 1995 and Odjegba and Sadiq, 2002).

In spite of the increasing number of auto-mechanic workshops in Gwagwalada, with their attendants indiscriminately dumping waste engine oil in the environment, we are not aware of any study that has attempted to isolate and identify bacteria present in used engine oil contaminated soil environment here in Gwagwalada. The present study was therefore undertaken with a view to isolating bacteria in soil samples contaminated with used engine oil.

2. Materials and Methods

2.1 Sample collection

The study sites were 5 different mechanic workshops situated at different locations in the town. The locations include the mechanic workshops at Demonstration Secondary School road, SDP junction, Jibeco filling station, beside St. Mary's Hospital and the mechanic workshop along market road in Gwagwalada, Abuja.

Apart from visual observation, the attendants at the mechanic workshops were asked questions pertaining to the sites with heavy oil spillage. The sites with the oil spillage had a characteristic black color and the surfaces were hard. They also had no grasses growing on them. Soil samples were collected at each workshop by digging up the soil with a hoe and transferring directly into clean, sterile containers. Samples were collected at 5 different sites at each mechanic workshop. Also, pristine samples were collected from non contaminated reference areas using the botanical garden in the University of Abuja as control site. They were then carefully transferred to the University of Abuja microbiology laboratory for analysis. Physical properties of the soil such as texture, temperature and pH were examined.

2.2 Determination of PH, Temperature and Electrical Conductivity Of Contaminated Soil

Soil pH was measured using a pH meter. The soil sample was mixed with distilled water and shaken properly. The pH meter was turned on and calibrated using buffers 4 and 10. This was done according to the manufactures instruction. The probe was rinsed thoroughly between buffers using de-ionized water. The pH meter was calibrated before each use. The calibration of the pH meter was confirmed by measuring the pH of the standard solutions in measure rather than calibrate mode. The meter which was used measures the pH taking into account temperature. The probe of the meter was submerged into the sample and the readings were taken. The readings were then recorded accordingly. The same procedure was followed in measuring for the E.C of the soil samples.

2.3 Isolation of Degrading Microorganisms

The culture media used for the isolation of engine oil degrading bacteria were Bushnell- Haas medium (Atlas, 1994) which is an enrichment medium for the isolation of engine oil degrading

bacteria, and nutrient agar. The media were prepared according to manufacturer's instructions.

During inoculation, 5 grams of contaminated soil was added to 50ml of the enrichment medium and was incubated at 30°C for 5 days. The enriched soil was shaken using a mechanical shaker according to Udeani *et al.*, (2009). Turbid samples were then sub-cultured into solid nutrient agar plates by transferring 1ml of the enriched soil sample into 9ml of distilled water, agitating vigorously and making serial dilutions up to 10⁵.

2.4 Total Bacterial Load

Samples were enumerated by making ten-fold dilutions of the soil samples from 1:10 to 1:1000000. 0.02ml of Dilutions 10¹,10²,10³,10⁴ and 10⁵ were transferred unto the solid nutrient agar plates. A clean sterile spreader was then used to spread the inoculum evenly throughout the medium. The plates were prepared and inoculated in duplicates. The inoculated plates were incubated at 35°C for 24 hours and subsequently monitored for growth. The colonies of the isolates were counted using a colony counter and the heterotrophic bacterial counts of the contaminated and uncontaminated samples were compared. Isolated colonies were further purified by sub-culturing and identified using bio-chemical tests and microscopy.

2.5 Identification of Isolates

Each isolate was examined for its size, shape, margin, consistency, elevation, pigmentation, gram reaction and cell morphology. The isolates were characterized as described by Holt *et al.*, (1994). Biochemical tests which were carried out include production of catalase, indole and oxidase enzymes. Motility test, spore production and oxidation/fermentation of sugars were also carried out.

3. Results

A total of 5 samples were collected from 5 different mechanic workshops. Heterotrophic bacterial counts in the contaminated samples ranged from 1.5 x 10⁴ to 7.6 x 10⁴ colony forming units g⁻¹ and from 6 to 14 x 10⁴ colony forming units per gram of soil in the uncontaminated soil samples which were collected. Table 1 shows bacterial counts of soil samples obtained from the five different sites.

Table 1: Bacterial counts of soil samples from different sites in Gwagwalada town.

Sites	Total Bacterial Count
S ₁	7.6 x 10 ⁴
S ₂	5.8 x 10 ⁴
S ₃	3.6 x 10 ⁴
S ₄	1.5 x 10 ⁴
S ₅	4.0 x 10 ⁴

S₁=SDP junction mechanic site, S₂=Demonstration secondary school road mechanic site, S₃= Jibeco filing station mechanic site, S₄= Mechanic site beside St. Mary's hospital and S₅ = Mechanic site at Gwagwalada market road.

3.1 Physiochemical Characteristics of Contaminated soil

The Physiochemical characteristics of soil samples collected from different automobile workshops used for the study were analyzed and subsequently tabulated in Table 2. The various characteristics like texture, temperature, electrical

conductivity and pH were taken into consideration for each of the samples which were named S₁, S₂, S₃, S₄ and S₅. The highest pH value (6.9) which was reported was in S₂ and the lowest (6.3) was in S₁. The electrical conductivity value was low in S₂ and S₅ but high in S₁, S₃ and S₄.

Table 2: Physiochemical properties of contaminated soils.

S/No	Properties	S ₁	S ₂	S ₃	S ₄	S ₅
1.	Texture	Sandy loam 31.9°C	Sandy loam 32.4°C	Sandy loam 30.9°C	Sandy loam 30°C	Sandy loam 31.6°C
2.	Temperature	6.3	6.9	6.4	6.7	6.5
3.	pH	1.25	0.20	1.30	1.28	0.60
4.	Electrical Conductivity Ec(dSM.1)					

3.2 Isolates obtained from used engine oil contaminated soil

The serial dilution technique was employed in isolating bacteria from engine oil contaminated soil samples. The isolates were then identified by morphological and biochemical characteristics. In

totality, different species of bacteria were isolated. The probable bacteria isolated are *Micrococcus* spp., *Pseudomonas* spp., *Bacillus* spp. and *Serratia* spp. (Table 3). The biochemical reactions of the isolates were also shown in Table 4.

Table 3: Bacterial Isolates from engine oil contaminated soil

Isolates	S ₁	S ₂	S ₃	S ₄	S ₅	Percentage Occurrence
<i>Micrococcus</i>	+	-	+	+	+	80%
<i>Pseudomonas</i>	+	+	+	-	+	80%
<i>Serratia</i>	+	+	-	-	-	40%
<i>Bacillus</i>	+	+	+	+	+	100%

{+ = Present,- = Absent}

Table 4: Biochemical characteristics of isolates

Identification parameters	Probable Identification			
	<i>Micrococcus sp.</i>	<i>Pseudomonas sp.</i>	<i>Serratia sp.</i>	<i>Bacillus spp.</i>
Motility	Non- motile	Motile	Motile	Motile
Indole	-	-	-	-
Oxidase test	+	+	-	+
Catalase test	+	+	+	+
Oxidation/fermentation test				
Glucose	Non glucose fermenting	Non glucose fermenting	Glucose fermenting	Non glucose fermenting
Lactose	Non lactose fermenting	Non lactose fermenting	Non lactose fermenting	Non lactose fermenting
Spore test	-	-	-	+

{+=positive, - = negative}

3.3 Biochemical and morphological characteristics of isolates

Table 4 shows the biochemical characteristics of the isolated organisms. The *Pseudomonas* spp. which was isolated produced colonies which were small, round, slightly raised and produced a blue green water soluble pigment known as pyocyanin which diffused into the medium. The bacteria were also oxidase positive, oxidized glucose in the oxidation fermentation test and were indole negative. They were also non spore forming, gram negative, and catalase positive, motile and aerobic rods. Morphologically, the colonies of *Micrococcus* spp. which were isolated were pigmented in shades of yellow. Its cells were also rhizoidal, opaque, rough and raised. Its cells were spherical in shape occurring as irregular clusters and not in chains. This helps to

differentiate them from other gram positive cocci. The bacteria were catalase positive, non- motile, aerobic, non – sporulating and gram positive. Another isolate, *Serratia* spp. produced red pigments on nutrient agar plates with a weak elevation after 24 hours of incubation. Biochemically, *Serratia* spp. is a rod shaped bacterium which reacted negatively to the gram stain and is also motile. On nutrient agar, the *Bacillus* spp. which were isolated produced cream, circular, entire, opaque, flat and rough edges. Microscopically, they were seen as gram positive long rods with a central spore.

The results of the bacterial count shows that the mechanic workshop at SDP junction had the highest count with 7.6×10^4 cfu/ml followed by the workshop at demonstration road with 5.8×10^4 cfu/ml, the next in line was the mechanic workshop at

Gwagwalada market road with 4.0×10^4 cfu/ml while the mechanic workshops at Jibeco filling station mechanic site had bacterial density of 3.6×10^4 cfu/ml and lastly the mechanic workshop beside St Mary's Hospital had the least with 1.5×10^4 cfu/ml. The bacterial isolates from the soil contaminated with petroleum products showed that *Bacillus* spp. had the highest percentage occurrence of 100% followed by *Pseudomonas* spp. and *Micrococcus* spp. each with 80% and *Serratia* spp. had the lowest percentage occurrence of 40%.

Our data show an obvious influence of waste engine oil discharge on the microbiological and physiochemical properties of soil. The relatively low heterotrophic bacterial counts observed in oil contaminated soils can be attributed to the toxic or un-favorable effect of oil contamination (Akoachere *et al.*, 2008). The ability to isolate high numbers of certain oil degrading microorganisms from oil polluted environment is commonly taken as evidence that these microorganisms are the active degraders in the environment. Although, hydrocarbon degraders may be expected to be readily isolated from an oil associated environment, the same be expected to be readily isolated from an oil associated environment, the same degree of isolates could be gotten from a totally unrelated environment such as pristine soil (Santhini *et al.*, 2009)

In motor mechanics workshops there is a constant change in the soil micro-organism as a result of deliberate spillage of used engine oil. These alter the biomass and ecology of the soil such that both microbial communities and grasses can no longer grow on the soil spots. The colour and texture of the soil are affected; this leads to different microbial flora establishment in an attempt to remedy the petroleum product spillage (Megharaj *et al.*, 2000). Although some studies have shown that, oil-polluted soils are dominated by Gram negative bacteria (McNaughton *et al.*, 1999; Kaplan and Kitts, 2004), the dominant culturable hydrocarbon utilizing bacteria from the soil samples were made up of gram positive *Bacillus* and *Micrococcus* and also gram negative *Pseudomonas* and *Serratia*. The results of the present study revealed that Gwagwalada soil may harbor hydrocarbon degraders that have been exposed to hydrocarbons as a result of the indiscriminate disposal of the spent engine oil collected from the crankcase of motor vehicles, motor bikes and other machinery in Gwagwalada metropolis. It was observed that the *Bacillus* sp. played a significant role in hydrocarbon degradation having shown dominance in all the test samples. This

observation is consistent with the works of Udeani *et al.*, (2009) and Makut *et al.*, (2010). The presence of *Micrococcus* and *Pseudomonas* spp. were also indicated in four out of the five samples showing an 80% occurrence. From this study, this shows that these microorganisms are also active degraders of petroleum hydrocarbon from soil. From this study, *Serratia* sp. had the lowest occurrence of 40%, showing the least degrading capabilities. Although this contradicts the works of Akoachere *et al.*, (2008) who reported that of all the isolates which were gotten, *Serratia* sp. degraded the highest amount of oil (36.2%), It is in line with the works of McNaughton *et al.*, (2009).

4. Conclusions

The investigation revealed that *Pseudomonas*, *Bacillus*, *Micrococcus* and *Serratia* species were isolated from soils contaminated with used engine in Gwagwalada Metropolis. The result of this study indicates that indigenously it is possible to isolate bacterial micro flora capable of degrading complex hydrocarbon compounds (used engine oil).

This investigation provides information that would lead to selection of bacterial species that could be employed for bioremediation in environments polluted with used engine oil.

We therefore conclude that oil-degrading bacteria are abundant in soils in Gwagwalada. This can be exploited for large oil-spill clean-up campaigns. This study also provides information on the physiochemical requirements for optimum degradation by these bacteria.

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三旋理论中的若干问题

吴新忠

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Abstract: 三旋在宏观世界是普遍存在的,在牛顿力学框架中描述推广不会引起大问题,但推广到非物质的心理世界,必须立足于合理的哲学观。如果三旋是在 3 维物理空间运动,那么在微观领域,“62 种三旋+各种平动”将构成若干种费曼图类型,每个费曼图中的作用量将通过各种运动包括 62 种三旋的拉格朗日量构造出来,而后相加形成一个波函数纯态。三旋的量子模型可以根据量子力学中转动算符与自旋的研究成果重新构造。

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Keywords: 三旋; 宏观; 普遍存在; 牛顿力学; 物质; 心理

1. 三旋在宏观世界是普遍存在的,在牛顿力学框架中描述推广不会引起大问题,但推广到非物质的心理世界,必须立足于合理的哲学观。面旋与体旋的拉格朗日量与哈密顿量很容易构造,应当尽快完成;线旋是王德奎强调的新发现,构造分析力学形式相当困难,但绝不是不可能构造,应当向分析力学专家求教。三旋是物理现象,而心理世界涉及很多虚构的对象,对于虚构对象进行三旋描述是不合规律的,犹如我们对于孙悟空的文学描述不合生理规律与自然规律,所以把三旋推广到心理虚构对象是不妥当的,这将导致作为物理现象的三旋脱离自然规律约束,成为数学的妄想。更不应当错误地把大脑当作思维在里面运行的“点内”运动的场所。从物理过渡到心理过程,不过是物质的部分信息进入心理过程转换,犹如声波被录音在磁带上。信息流可能有三旋运动,但要区分物质的自在客观信息与头脑中的人化观念信息的差异。大脑是信息处理器,不是虚构对象“点内”运动的场所,犹如镜子只能形成“物象”,但镜面内部不是“物象”点内运动的场所,犹如《爱丽丝镜中漫游记》的童话:“物象”的运动空间是人虚拟构想的,“她”似乎在镜内或头脑中,而其实不过是信息幻像。王德奎的三旋认识论,其实是幼稚童话思维的残余,既能激发想象,又常被幻想误导。物质与物象的区别,就是“实”与“虚”的差别,它们只是在信息层面同构等价;虚拟时空在数学上可以看作是以镜面或反映面(如电视屏或大脑神经系统)为底空间的纤维丛空间,而反映面自身仍然处于物理的 3 维现实空间中。正负的区别,犹如波峰与波谷的区别。吃饱肚子为胃的正充实态,饥饿就是胃的负空穴态,都是实在的正负;而一套房子如果从来不交易,价格的上涨或回落就是虚拟的资产正负;交易就是虚实转换的交界面,涉及虚信息获得能量与物

质载体而实化。我看见一个人,与我想到一个人,大脑神经元的活动类似。想到一个人,而没有看见他,不能看作那人在大脑中的“点内运动”,而是大脑神经元有类似看见一个人时的神经脉冲,外部物理世界却没有这个人的实际存在。正如磁带播放音乐,并不是一个虚拟的歌星在磁带的“点内歌唱”,而是磁带信息同构于歌星的演唱信息。播放磁带,就是虚拟信息部分实化为音乐的过程,但演唱者没有实化。

2. 如果三旋是在 3 维物理空间运动,那么在微观领域,“62 种三旋+各种平动”将构成若干种费曼图类型,每个费曼图中的作用量将通过各种运动包括 62 种三旋的拉格朗日量构造出来,而后相加形成一个波函数纯态。而某种三旋运动在宏观的出现,可以看作量子波函数的本征态以一定概率进入这种三旋运动的退相干过程。另外,某一种旋转状态很容易在外力与碰撞下变成另一种旋转状态。其实,62 三旋密码可能就是 64 卦除乾坤外 62 卦的几何图示,阴阳二气在类圈体的 62 种三旋运动中激荡不息,而乾坤就是球的两种转动。

因此,夸克的 3 旋密码绝对不是在物理空间中的三旋运动,而是微观内部空间中的某个“圆圈”在未知的三个维度的运动,它们如何与夸克的各种量子数对应,是王德奎通过《三旋理论初探》中的 404-408 页给出的,但缺少严密的论证,得不到量子色动力学的公认。这些三旋密码如何与 25 种黎曼切口得到的轨形拓扑联系,几乎没有微分几何的数学表示以及量子场论的物理论证(46-47 页)。特别是为何某个轨形拓扑代表光子,电子或夸克,王目前没有给出论证。还有 25 种轨形拓扑是 0-2 孔的,它们的组合能穷尽 3 维空间中的多孔曲面吗?这个数学猜想需要严密证明。25 这轨形拓扑企图对高维卡丘空间中的多孔形态进行选择,其

实是不可能的。因为高维几何对象只有通过 3 维空间中的各种投影,才能被我们直观。当 2 个圆圈画在 3 维球面或环面上,从 3 维看是 2 孔;而在 2 维平面上的投影有 2 孔,以及 2 圆投影相交后的 3 孔。由于高维投影导致孔数变化,王提出的多孔选择方案行不通。

3. 第 51 页声称,从物质族轨形拓扑能够推导出基本粒子质量谱公式,这是如何从几何图形过渡到代数公式的?如果有类似开普勒早期那种正多面体内切球和外接球的几何图形,当然能得到行星轨道的代数比例关系,但王德奎似乎没有给出如此明朗的几何图形以及显而易见的代数关系之间的推理过程。因为我已经指出,代表微观粒子的三旋密码绝对不是物理空间中的 3 维旋转密码,所以质量谱公式绝对不是我们这个真空破裂过程导致的,而是与微观粒子的内禀空间破裂有关的。如果是我们这个真空破裂,涉及的质量关系必定与光速,普朗克常数,甚至万有引力常数有关,因为这是弯曲时空中各种粒子近光速运动撕裂真空的过程。我倾向于认为,王没有把微观粒子的内禀空间搞清楚,质量谱公式可能是微观粒子内禀空间的几何形态的组合关系,犹如开普勒早期的正多面体套球的太阳系模型。王与开普勒命运类似,经常挨饿与吃亏,有献身科学的宗教热情。开普勒是基督新教的鼓舞,王是中国道教的鼓舞。但开普勒最后被承认了,王可能还处在开普勒发现行星三大定律的前夜,即多面体套球的太阳系模型阶段。

4. 王一再把三旋应用于心理过程,那么三旋探索的失误也可以通过心理过程的科学解释来澄清。其实,三旋时间是不恰当的概念,应当指系统的运动状态有 62 种循环模式,可以用同一时间方向下,一个系统的内部时钟的指针绕转方向的变化来代表,是指针运动切矢量的变化方式。三旋时间是王在科学研究到处开拓,抱负太大而迷失方向的心理写照。所谓回忆过去事件是虚拟时间旅行,完全是把人的心理过程科幻化的产物。首先,无论在心理上回忆过去或展望未来,都不是进入过去或未来的时间旅行,那不过是想象层面的事件,我们的想象涉及过去事件或未来事件的心理信息,与我们当下感知的经验事件处在不同的认识层次上。其实,所以反馈机制都涉及过去信息的保存和回忆运用,但不是时间旅行。时间与空间是涉及万物的基本概念,如果不是万不得已,最好不要为了解释某种现象任意修改时空概念,这一修改的代价是有关万物的所有解释需要改动。相对论是因为实在到了不修改牛顿力学就无法保证力学与电磁学,光学现

象的一致性,才被迫修改时空观的,代价就是除了电磁学以外的所有物理理论被迫相对论化理解。这个相对论时空观修改到目前没有被完全理解,大量民间学者因为不理解相对论时空观而顽固坚持牛顿力学概念,胡乱修改电磁学与现代物理理论。王一方面自己改动成熟科学中的时空观,喜欢用三旋给广义相对论添加微不足道的绕率等等;另一方面同情反相对论的民间学者,其实是因为质量谱公式的解释需要一个真空破裂时粒子“质量恒定”的牛顿式物理模型。而按照我的新理解,质量谱公式涉及的真空破裂不是在我们这个维度的真空发生的,而是在另一个保持某种三旋运动稳定的另类空间中发生的,其中一个圆圈的面旋不会因为碰撞会轻易转向体旋或线旋的振动(如果就在我们的三维空间,那么按照三旋密码,一个粒子会太容易因碰撞而转变为另一类粒子)。王的另一个心理误区是,自己的成果长期得不到主流学术界承认,是因为主流派害怕失去学术控制权力而打压,于是求救于民间学者的声援。其实,真正原因是王对于自己的研究成果论证不严密,过分创新而让人费解,求助于民间学者无非是太喜欢有人捧场,于是他自己也极不恰当地吹捧他人是科学家之流。如果超脱这种迷恋名声的不良心态,认真推敲自己研究中的失误与不足,按照主流派的术语表达思想,严密论证,我相信王的研究成果是会被理解认同的;即使错了,也会成为在伟大艰巨的探索中发生的悲壮的错误。我既没有因为沈骊天,李后强,金吾伦等学者的支持而完全认同三旋,也没有因为何祚庥,李新洲等学者的反对而彻底否定三旋。我独立思考后,是建议你根据成熟科学的框架修改三旋理论,让含金量高的半成品提炼出真正的学术黄金。不过,我比你水平差得多,只能指点你消除一些原则性的错误,以及分析未来的发展方向。你研究三旋,最后能否修行成功,要靠自己的造化与上天赐予的良机。

5. 三旋的量子模型可以根据量子力学中转动算符与自旋的研究成果重新构造,建议王研读倪光炯 陈苏卿的《高等量子力学》(复旦大学出版社,2000 年 3 月),这是从自旋开始讲述量子力学的。其实,如果你把三旋的分析力学表示搞出来,再把转动算符引进去,三旋的量子模型就有了。你原来的那些量子三旋,其实是没有真正量子化的,而是经典三旋的微观缩小版本。量子自旋问题,李新洲给我说过,有点像杯子转动时内部水的转动;我结合磁距与自旋网络,倾向于把自旋看作是电子的电力线与磁力线转动时的量子形态。

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