THE VISCOCITY AS THE ASSOCIATOR OF DUPLICABLE SOLITONS FOR THE DUPLEXITY OF BRAUER GROUPS (LEVI-CIVITA CONNECTIONS FOR N-BODIES PROBLEM REVISITED)

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ABSTRACT. There can be Cauchy problem in hydrodynamics after J. Leray for the Taylor-Couette system situated on the setting of fluid dynamics. It equates residues of Taylor-Couette system with singularities of the adjacent formality of such the Taylor-Couette system so as to represent additional dimensional spaces that do not affect the perturbative formalities on spherical coordinates system without singularities, e.g. the formality of Floer cohomology on symplectic conditions so as to be the adjective replacement of the formalism of Levi-Civita connections of n-bodies problem.

1. INTRODUCTION

It is possible to regard the mixed conditions of kinematic density and of degeneacy in their well-approximated conditions in normed linear spaces as the well theorematized and the well geometrized formality concerning the possible computational volume in normed linear spaces. Conformal blocks of BEAUVILLE-LASZLO [1] serves for objective bases on such the formality setting after MONTEL [8][9] LERAY [6][7] CARTAN [3] SCHEWARTZ [10] THOM [13] BOREL-SERRE [2] LEBESGUE [5] KATAOKA [4] and based on the compositional duality of Brauer groups after SERRE [11][12].

The viscocity is the constants fixed condition for the perturbative description of the adjective formalization of certain tensorial space. Then the constants fixed condition is not other than that of

$$A^{*} = \mathbb{F} \cdot X_{1}$$

where the concreteness is given by

$$A=\begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix},$$

$$A\in\mathbb{C}^3\times\mathbb{C}^3,$$

,

$$A^*=\begin{pmatrix} \alpha_1 & a_{33} & \gamma_x^{-1}\gamma_z\overline{a_{22}} \\ \gamma_y^{-1}\gamma_x\overline{a_{33}} & \alpha_2 & a_{11} \\ a_{22} & \gamma_z^{-1}\gamma_y\overline{a_{11}} & \alpha_3 \end{pmatrix}\in\mathbb{C}^3\times\mathbb{C}^3,$$

$$X_1=\begin{pmatrix} \xi_1 & z & \gamma_x^{-1}\gamma_z y \\ \gamma_y^{-1}\gamma_x z & \xi_2 & x \\ y & \gamma_z^{-1}\gamma_y x & \xi_3 \end{pmatrix},$$

$$(x,y,z)\in\mathbb{R}^3,$$

$$(\xi_1,\xi_2,\xi_3)\in\mathbb{C}^3,$$

$$(\sigma_1,\sigma_2,\sigma_3)\in\mathbb{C}^3,$$

$$\mathbb{F}=\begin{pmatrix} \sigma_x & \tau(y,x)=\tau(x,y) & \tau(z,x)=\tau(x,z) \\ \tau(x,y)=\tau(y,x) & \sigma_y & \tau(z,y)=\tau(y,z) \\ \tau(x,z)=\tau(z,x) & \tau(y,z)=\tau(z,y) & \sigma_z \end{pmatrix}\in\mathbb{C}^3\times\mathbb{C}^3.$$

τ -function is defined by positive Hermitian G with the condition such that

$$\frac{\tau(z,x)}{\tau(x,z)}=\frac{\tau(y,z)}{\tau(z,y)}=\frac{\tau(x,y)}{\tau(y,x)}=\sqrt{\frac{\det(1+G)}{\det\sqrt{-1}(1-G)}}=1,$$

$$\det(1+G)=\det\sqrt{-1}(1-G).$$

It is then possible to define such an Hermitian by

$$\frac{\det(1+G)}{\det\sqrt{-1}(1-G)}=\det B=1.$$

One may replace its local conditions by the conditions given by (3, 3)-mtrix B_1 that suffices

$$B_1A=\begin{pmatrix} a_{31} & a_{21} & a_{11} \\ a_{32} & a_{22} & a_{12} \\ a_{33} & a_{23} & a_{13} \end{pmatrix},$$

$$B_1^2A=\begin{pmatrix} a_{33} & a_{32} & a_{31} \\ a_{23} & a_{22} & a_{21} \\ a_{13} & a_{12} & a_{11} \end{pmatrix},$$

$$B_1^3A=\begin{pmatrix} a_{13} & a_{23} & a_{33} \\ a_{12} & a_{22} & a_{32} \\ a_{11} & a_{21} & a_{31} \end{pmatrix},$$

$$B_1^4A=A$$

for $a_{11},a_{12},a_{13},a_{21},a_{22},a_{23},a_{31},a_{32},a_{33}\in\mathbb{C}$, where we hold

$$B_1^4 A = A, \quad AB_1^4 = A$$

$$\left(B_1^{-4} A = A, \quad AB_1^{-4} = A\right).$$

It is same with the replacement of the conditions for the fixation of $(\sigma_1, \sigma_2, \sigma_3) \in \mathbb{C}^3$ by the conditions of a cyclic group such that

$$B_1 = \begin{pmatrix} \exp\sqrt{-1}\cdot m_{11}^1\pi & \exp\sqrt{-1}\cdot m_{12}^1\pi & \exp\sqrt{-1}\cdot m_{13}^1\pi \\ \exp\sqrt{-1}\cdot m_{21}^1\pi & \exp\sqrt{-1}\cdot m_{22}^1\pi & \exp\sqrt{-1}\cdot m_{23}^1\pi \\ \exp\sqrt{-1}\cdot m_{31}^1\pi & \exp\sqrt{-1}\cdot m_{32}^1\pi & \exp\sqrt{-1}\cdot m_{33}^1\pi \end{pmatrix},$$

$$m_{11}^1, m_{12}^1, m_{13}^1, m_{21}^1, m_{22}^1, m_{23}^1, m_{31}^1, m_{32}^1, m_{33}^1 \in \mathbb{Z},$$

$$m_{11}^1 \times m_{12}^1 \times m_{13}^1 \times m_{21}^1 \times m_{22}^1 \times m_{23}^1 \times m_{31}^1 \times m_{32}^1 \times m_{33}^1 \neq 0$$

that suffices

$$\left(I - B_1^4\right) A = 0,$$

$$B_1^4 = I,$$

$$B_1^3 = B_1^{-1},$$

$$B_1^2 = B_1^{-2}.$$

as a cyclic group so as to be 6 elements of the set of the same conditins for such a kind of cyclic groups. It results in the definition of a cyclic group $\{B_1, B_2, B_3, B_4, B_5, B_6\}$ formed by a set of 6 elements of the above type of cyclic groups. Then we obtain $B_j^2 = B_j^{-2} \quad (j = 1, 2, \ldots\ldots, 6)$ for $\{B_1, B_2, B_3, B_4, B_5, B_6\}$. That is, we hold

$$\mathbb{F} = \exp(r) \cdot I \cdot B,$$

$$r \in \mathbb{R}, \quad r \neq 0,$$

$$\mathbb{F} = \begin{pmatrix} \exp\left(r + \sqrt{-1} \cdot m_{11}\pi\right) & \exp\left(r + \sqrt{-1} \cdot m_{12}\pi\right) & \exp\left(r + \sqrt{-1} \cdot m_{13}\pi\right) \\ \exp\left(r + \sqrt{-1} \cdot m_{21}\pi\right) & \exp\left(r + \sqrt{-1} \cdot m_{22}\pi\right) & \exp\left(r + \sqrt{-1} \cdot m_{23}\pi\right) \\ \exp\left(r + \sqrt{-1} \cdot m_{31}\pi\right) & \exp\left(r + \sqrt{-1} \cdot m_{32}\pi\right) & \exp\left(r + \sqrt{-1} \cdot m_{33}\pi\right) \end{pmatrix},$$

$$B = \begin{pmatrix} \exp\sqrt{-1} \cdot m_{11}\pi & \exp\sqrt{-1} \cdot m_{12}\pi & \exp\sqrt{-1} \cdot m_{13}\pi \\ \exp\sqrt{-1} \cdot m_{21}\pi & \exp\sqrt{-1} \cdot m_{22}\pi & \exp\sqrt{-1} \cdot m_{23}\pi \\ \exp\sqrt{-1} \cdot m_{31}\pi & \exp\sqrt{-1} \cdot m_{32}\pi & \exp\sqrt{-1} \cdot m_{33}\pi \end{pmatrix},$$

$$-1 \leq m_{11}, m_{12}, m_{13}, m_{21}, m_{22}, m_{23}, m_{31}, m_{32}, m_{33} \leq 1,$$

$$m_{11}, m_{12}, m_{13}, m_{21}, m_{22}, m_{23}, m_{31}, m_{32}, m_{33} \in \mathbb{R},$$

$$\det B = 1$$

for the fixation of or the definition of gauge invariance of

$$\operatorname{trace}(\mathbb{F}) = \sigma_1 \cdot \sigma_2 \cdot \sigma_3,$$

$$\sigma_1 = \exp\left(r + \sqrt{-1} \cdot m_{11}\pi\right),$$

$$\sigma_2 = \exp\left(r + \sqrt{-1} \cdot m_{22}\pi\right),$$

$$\sigma_3 = \exp\left(r + \sqrt{-1} \cdot m_{33}\pi\right).$$

2. ASSOCIATOR FOR SOLITONS AS THE BASES OF TRACE FORMULA

The geometrization is performed by defining

$$\Phi : (x, \theta, y) \mapsto (x, y, \xi, \eta) \quad \text{for} \quad (x, \theta, y) \in C_\varphi,$$

$$\xi \equiv \frac{d\varphi(x, \theta, y)}{dx}, \qquad \eta \equiv \frac{d\varphi(x, \theta, y)}{dy}$$

so as to be the immersion from C^∞ to its cotangent bundle $T^*\left(\mathbb{R}^n \times \mathbb{R}^n\right) \backslash 0$. Then we obtain Lagrangean submanifold $\Lambda_\varphi \equiv \Phi \cdot C_\varphi$ such that

$$\sum_j d\xi_j \wedge dx_j - \sum_j d\eta_j \wedge dy_j = 0 \quad \text{on} \quad \Lambda_\varphi .$$

where Λ_φ is a homogeneous space. That is, for $t > 0$, there always exists the geometric conditions $m_t \Lambda_\varphi \equiv \Lambda_\varphi$ such that

$$m_t : T^*\left(\mathbb{R}^n \times \mathbb{R}^n\right) \longrightarrow T^*\left(\mathbb{R}^n \times \mathbb{R}^n\right),$$

$$m_t\left(x,y,\xi,\eta\right)\equiv\left(x,y,t\xi,t\eta\right)$$

so as to be compatible with the definition of C^1-class differentiable manifold V_m^h. For local coordinates system Λ_φ such that

$$\left(\lambda_1,\lambda_2,\dots,\lambda_{2n}\right),$$

one may choose always its local coordinates system near C_φ so that

$$\left(\lambda_1,\lambda_2,\dots,\lambda_{2n},\frac{\partial\varphi}{\partial\theta_1},\frac{\partial\varphi}{\partial\theta_2},\dots,\frac{\partial\varphi}{\partial\theta_N}\right),$$

can obtain the formality of Jacobian determinant expressed by

$$J\equiv\frac{D\left(\lambda_1,\lambda_2,\dots,\lambda_{2n},\frac{\partial\varphi}{\partial\theta_1},\frac{\partial\varphi}{\partial\theta_2},\dots,\frac{\partial\varphi}{\partial\theta_N}\right)}{D\left(x,\theta,y\right)}.$$

It is then possible to determine the index of the integral kernel as some constants on the convexity of the geometrization of such a Jacobian determinant. That is, the restricton mapping of integral kernel to C^1-class differentiable manifold V_m^h is expressed according to its integral symbol by

$$a\big|_{C_\varphi}:a\left(x,\varphi,y\right)\longrightarrow C_\varphi,$$

$$C^\infty\left(\mathbb{R}^n\times\mathbb{R}^N\times\mathbb{R}^n\right)\longrightarrow C_\varphi$$

and the geometrization of such a Jacobian determinant is expressed by

$$a_{\Lambda_\varphi} \equiv \sqrt{J} \cdot \left[a|_{C_\varphi} \right] \circ \left[\Phi^{-1} \cdot \exp\left(\pi M \sqrt{-1}/4 \right) \right]$$

so as to be an index of M .

The singularities of kernel distribution $k(x, y)$ are then determined according to the definition of homogeneous Lagrangean manifold V_m^h similarly as its residues if one can equalize C^1-class differentiable manifold V_m^h to Λ_φ and to its integral symbol a_{Λ_φ}, that is, fibration cannot be other than the fixation of local coordinates system within the determinant when its Jacobian determinant is invariant.

3. STABILITY

It is possible to define and fix the formalism of C^1-class differentiable manifold V_m^h as the fixation of its perturbative formality such that

$$w_1^2 + w_2^2 + \ldots + w_{m-h}^2 - w_{m-h+1}^2 - \ldots - w_m^2 ,$$

where w_i is a Pfaffian form and one can also determine its coordinate neighborhood at an each point p with its local coordinate system $\left(x^1, \ldots, x^m \right)_p$ and each $\left(w_i \right)_p$, $i = 1, \ldots, m$ forms the base of the dual space of the tangent space on p . If $h = 0$, then V_m^0 represents the formality of Floer cohomology as the monodromic reduction of its adjective formality on conformal blocks, that is, it is nothing but Galois cohomology as the adjective formality that serves for its bases according to its SO(n)-connections.

THEOREM (Borel-Lichnerwicz).

The restricted homogeneous holonomy group is the connected component of the identity element of the formalism of C^1 -class differentiable manifold V_m^h *.*

4. GALOIS COHOMOLOGY OF SO(N)-CONNECTIONS AS THE SETTING OF BLIND DATE PROBLEM

For $R^* \in SO(n)$, we hold $\text{dét}(R^*) = 1$. $SO(n)$ is a normal subgroup of $O(n)$ under the condition of index 2. For $R \in O(n)$, there exists an orthogonal group T that suffices the transformation such that

$$T^{-1}RT = \text{diag}(1,\ldots,1,-1,\ldots,-1,P_1,\ldots,P_t)$$

where

$$P_j = \begin{pmatrix} \cos\theta_j & \sin\theta_j \\ -\sin\theta_j & \cos\theta_j \end{pmatrix}, \qquad 1 \le j \le t,$$

$$\text{dét}R = \pm 1,$$

$$\text{dét}\left(T^{-1}RT\right) = \pm 1.$$

Let

$$P_j = g_j^* = \begin{pmatrix} \cos\theta_j & \sin\theta_j \\ -\sin\theta_j & \cos\theta_j \end{pmatrix}$$

be the definition of modular functions such that

$$F\left(z_i^1, z_i^2\right) = \Phi\left(g_j^* \begin{pmatrix} z_i^1 & z_i^2 \\ 0 & 1 \end{pmatrix} \right),$$

$$f_j^*\left(z_i^{1'},z_i^{2'}\right)=f_j^*\left(z_i^1,z_i^2\right)\cdot e^{v_j^*\left(\theta_j-\theta_j'\right)\sqrt{-1}}.$$

For the composition of the duality between (i) and (j) and of the homotopicity of $SO(n)$-coefficiens under the condition such that $\mathbb{Z}_2$, $i=1 \mod 8$, it is enough to consider that the duality between $\left(z_i^1,z_i^2\right)$ and $\left(z_i^{1'}z_i^{2'}\right)$ is fixed for $i=1$. Then we obtain

$$e^{v^*\left(\theta_j-\theta_j'\right)\sqrt{-1}}, \qquad j=1,\ldots,t$$

for some fixed v^* under the conditions that they can be localized within

$$T^{-1}R^*T=\mathrm{diag}\left(1,\ldots,1,-1,\ldots,-1,P_1,\ldots,P_t\right)$$

with the condition $\mathrm{dét}\left(T^{-1}R^*T\right)=1$.

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