INTEGRAL GEOMETRY METHODS ON DERIVED CATEGORIES AND THEIR MODULI STACKS IN THE SPACE-TIME

Prof. Dr. Francisco Bulnes

HEAD OF RESEARCH DEPARTMENT IN MATHEMATICS AND ENGINEERING, TESCHA, FEDERAL HIGHWAY MEXICO-CUAUTLA W/N TLAPALA "LA CANDELARIA", CHALCO, STATE OF MEXICO, P. C. 56641, MEXICO.

E-mail address: francisco.bulnes@tesch.edu.mx

ABSTRACT

Geometrical moduli stacks are obtained through the Penrose transforms frame used on generalized $D$-modules as $D_{\lambda}$-modules with the corresponding character of a Hecke category $[1],[2]$ which correspond to deformed images to some ramifications which can be classified by the theorem of correspondences to ramifications$[3]$, where the unique geometrical pictures in field theory to different cohomological classes of the sheaves in category $D^x(Bun_G(\Sigma))$, are three type of fundamental co-cycles that are geometrical objects belonging to the global Langlands category (let monodromic or not) corresponding to a system $Loc_{L_G}(E^x)$, of the objects included in a category that involves a category of quasi-coherent sheaves on $DG$, of certain fibers on the generalized flag manifolds that are $\lambda$-twisted $D$-modules of the flag variety $G/B$. These quotients of cohomology classes on derived sheaves are generalized Verma modules $[2]$ that in the ambit of solutions on the space-time of the field equations and using the Recillas’s conjecture $[2],[4]$ are classification spaces of $SO(1,n+1)$, where elements of the Lie algebra $\mathfrak{sl}(1,n+1)$ are differential operators, of the field equations in space-time $[5],[6]$. The cosmological problem that exists is to reduce the number of field equations that are resoluble under the same gauge field (Verma modules) and to extend the gauge solutions to other fields using the topological groups symmetries that define their interactions. Precisely the application of the Penrose transform $L_{Bun_G}$, let see which are generalized Verma modules of the Langlands geometrical equivalences $D_{BRST}(\mathcal{O}per_{L_G}(D_B)) \cong D^x(Bun_G(\Sigma))$, which are demonstrated in $[2]$. But, the unique objects that are coefficients of the cohomological space of dimension 0, $(H^0(X,\mathcal{O}))$, $[6]$ are the Verma modules $V_\lambda(\chi), \forall \chi \in Op_{L_G}^\lambda$. This extension can be given by a global Langlands correspondence between the Hecke sheaves category $\mathcal{H}_{G^{\wedge},\infty}$, on an adequate moduli stack and the holomorphic $L_G$ - bundles category with a special connection (Deligne connection). The corresponding $D_B$ - modules may be viewed as sheaves of conformal blocks (or co-invariants) (images under a generalized version of the Penrose transform of the type $\phi^\mu(M) = M\mathbb{R}\rho^\mu(V)$) naturally arising in the framework of conformal field theory as isomorphisms between cohomological spaces of orbital spaces of the space-time.

Finally and searching to extend the structure of the holomorphic bundles to the

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meromorphic context, are obtained some moduli space identi ties [7] through line bundles of critical level and extend these to a line bundle $\tilde{L}_\lambda$ to obtain coho-
moological classes solution of singular components of the Hitcin space-time (we consider the complex Riemannian manifold (non-compact manifold with singularities) as a Hitchin moduli space) using as basis a Higgs fields moduli space $\mathcal{M}_{\text{Higgs}}(G, \mathbb{C})$, to the obtaining meromorphic solutions to the correspond-
ing enhanced part of the connection (singular part of the connection) or irregular ramification [1]. In this case the moduli space is the decomposition of the space-
time as images in the dual by the Penrose transform which can be varieties where their moduli components can be super-projective spaces, for example $\mathcal{M}(0, \mathbb{P}^3) \cong \mathbb{P}^3[1]$, [7].

\[ \text{Precisely } \mathbb{D}_{\text{coh}}(\mathcal{L}_{\text{Bun}}, \mathbb{D}) \cong \text{Ker}(\mathcal{U} \cdot \tilde{\partial} + \nabla_s), \text{then their images under the}\]
\[ \text{inverse Penrose transform are elements in sheaves of the category } \mathcal{D}_{\text{BRS}}(\text{Oper}_{\mathcal{L}_G}^{\leq n}), \text{since by}\]
\[ \mathbb{Q}_{\text{BRS}}^2 = 0, \text{which is equivalent to the application of Cousin cohomology and their}\]
\[ \text{involved twistor transform haves kernel isomorphic (this could be in } \mathbb{Z}(\mathfrak{g}_{\mathfrak{c}_x}) \text{) to FunOp}_{\mathcal{L}_G}(\mathcal{D}^\times).}\]

By the \textit{Opers} theory $\text{Op}_{\mathcal{L}}(\mathcal{D}^\times) \cong \text{proj}(\mathcal{D}^\times) \times \oplus \Omega_{\mathcal{X}_G}^{\leq n}(d_j+1)$, where $\Omega^{\leq n}_{\mathcal{X}_G}$ is the space of $n$ -
\[ \text{differentials on } \mathcal{D}^\times, \text{and proj}(\mathcal{D}^\times)\text{is the } \Omega_{\mathcal{X}_G}^{\leq 2} \text{ - torsor of projective connections on } \mathcal{D}^\times, \text{which}\]
is conformed $\nabla_s$. complex variable.

3This is much seemed to the analytic continuation studied in complex variable. In this case is more complicated, since $\nabla_+$ ramifications, can be viewed as images under functors of the type $\Phi+\text{Geometrical hypothesis}$, using our integral transforms.


References


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