9

References

1. SAH in TN 9.

2. Leray, J (1959) Bull. Soc. Math. France 87 81-180.

3. SAH and MAS "Relative Cohomology and Projective Twistor Diagrams" preprint.

4. SAH and MAS in TN 23.

Stephen Huggett   Michael Singer

Abstract

Almost Hermitian Symmetric Manifolds I
Local Twistor Theory

R. J. Baston
Mathematical Institute
St. Giles
Oxford
OX1 3LB
U.K.

January 26, 1989

Abstract

Conformal and projective structures are examples of structures on a manifold which are modelled on the structure groups of Hermitian symmetric spaces. We show that each such structure has associated a distinguished vector bundle (or *local twistor bundle*) equipped with a connection (*local twistor transport*). For projective and conformal manifolds, this is Cartan's connection. The curvature of the connection provides an tensor invariant which vanishes if and only if the manifold is locally isomorphic to a Hermitian symmetric space.

the inner product will be either undefined or not positive definite.

Remarks:

① I don't know what these representations look like when restricted to $U(2,2)$. They will generally be reducible. For instance, they should contain copies of

$$\Gamma(M^{\pm}, \mathcal{O}[m_1][m_2]').$$

One hope would be that they contain a sequence of interesting representations in some fashion similar to the way massless field representations come from restricting the metaplectic representation to $U(2,2)$.

② When forming the line bundle on M one gets a holomorphic bundle only when the starting representation is holomorphic. The representations used here look like:

$$\left(\begin{array}{c|c} L_1 & \\ \hline & L_2 \end{array}\right) \longmapsto \frac{(\det L_1)^{m_1}(\det L_2)^{m_2}}{|\det L_1|^{s_1-m_1}|\det L_2|^{s_2-m_2}},$$

which is not holomorphic for $s_1 \neq m_1$, $s_2 \neq m_2$.

Ed Dunne.

REFERENCES:

E. Stein, Ann. of Math 86, p461-490.

D. Vogan, Unitary Representations of Reductive Lie Groups, PUP (Ann. of Math Series #118).

Abstract: (To appear in Physics Letters A)

Nonlinear Schrödinger and Korteweg-de Vries are Reductions of Self-Dual Yang-Mills

L.J.Mason†‡ & G.A.J. Sparling‡, University of Pittsburgh.

Abstract

The non-linear Schrödinger (NS) and KdV equations are shown to be reductions of the self-dual Yang-Mills (SDYM) equations. A correspondence between solutions of the NS and KdV equations and certain holomorphic vector bundles on a complex line bundle over the Riemann sphere is derived from Ward's SDYM twistor correspondence. Remarkably the twistor correspondence generalizes to the NS and KdV hierarchies when complex line bundles of higher Chern class are used. We discuss solitons and inverse scattering.

†Andrew Mellon postdoctoral Fellow and Fulbright Scholar. Present address: The Mathematical Institute, 24-29 St Giles, Oxford OX1 3LB, England.

‡ Supported in part by the National Science Foundation.