Lie Group and Representation Theory Seminar

Date: November 1 (Tue), 2005, 16:30–17:30
Place: RIMS, Kyoto University : Room 402
Speaker: Jun O'Hara (Tokyo Metropolitan University)
Title: Conformal geometry of curves

Abstract:

We study the space $S(q,n)$ of $(q+2)$-dimensional vector subspaces of the $(n+2)$-dimensional Minkowski space which intersect the light cone transversely. It is a subset of an indefinite Grassmann manifold. This space can be identified with the space of q-spheres in S^n. I will explain the notion of a pencil, which is one-parameter family of codimension 1 spheres in S^k. Using pencils, I will give a pseudoorthonormal basis $S(q,n)$.

The pseudo-Riemannian structure of $S(q,n)$ allows us to give an interpretation of the "infinitesimal cross ratio", which is a complex valued 2-form on the two point configuraion space of a knot K, $K \times K$-(diagonal): The real part of it can be interpreted as an area element of a surface in $S(q,n)$.

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