**Meeting:** 1000, Albuquerque, New Mexico, SS 5A, Special Session on Categories and Operads in Topology, Geometry, Physics and Other Applications

1000-20-166 **Piotr Stachura*** (stachura@fuw.edu.pl). *On the full "momentum space" in Double Special Relativity.* Preliminary report.

The $\kappa$-deformation is formally a quantization of a Lie-Poisson structure on the Poincaré group $P(n)$ which is defined by a decomposition of the Lie algebra $so(1,n+1) = \mathfrak{b} \oplus so(1,n)$. If this decomposition could be lifted to a group level, (if $SO_0(1,n+1) = B\,SO_0(1,n)$ for a closed subgroup $B$ with a Lie algebra $\mathfrak{b}$) it would define a topological quantum group. In fact that also would be true if the set of decomposable elements were dense and had a full measure. But it is also known that this decomposition is only local and the complement of the set of decomposable elements has non empty interior. Yet, one can improve the situation: ther exists a *non connected* extension of $SO_0(1,n)$ inside $SO_0(1,n+1)$ (in fact the orthochronous Lorentz group) with open and dense set of decomposable elements.In this sense a "topological" ($C^*$-algebraic) version of $\kappa$-Poincaré group does exist. We describe the "action" of this extension on the group $B$ and relate it to the Doubly Special Relativity framework (we use the quotation marks to indicate that this is not a true action, group elements act by densely defined mappings). We also show that one can extend the manifold $B$ to get a true action of the (orthochronous) Lorent group. (Received August 23, 2004)