Juan Jose Villarreal* (jjvillarreal28@gmail.com). Nilmanifolds and their associated non local fields.

We attach for some nilmanifolds an affine Kac Moody vertex algebra together with a module $H$. For vectors in $H$ we associated fields in such a way that lead us to consider logarithmic fields, this map can be seen as an extension of the fields defined on a vertex affine Kac Moody algebra. This construction is motivated by physics.

In this work we are interested in the singularities of these fields. We study a particular case, we show that when the nilmanifold $N$ is a $k$ degree $S^1$–fibration over the two torus and a choice of $l \in \mathbb{Z} \simeq H^3(N,\mathbb{Z})$ the fields associated to the space $H$ have tri-logarithm singularities whenever $kl \neq 0$. (Received July 24, 2018)