1138-22-159 **Nicolas Ressayre*** (ressayre@math.univ-lyon1.fr), Université Claude Bernard Lyon 1, Institut Camille Jordan (ICJ), 43 boulevard du 11 novembre 1918, 69622 Villeurbanne, France. *On the tensor semigroup of affine Kac-Moody Lie algebras.*

In this talk, we are interested in the decomposition of the tensor product of two representations of a symmetrizable Kac-Moody Lie algebra $\mathfrak{g}$. Let P_+ be the set of dominant integral weights. For $\lambda \in P_+$, $L(\lambda)$ denotes the irreducible, integrable, highest weight representation of $\mathfrak{g}$ with highest weight λ. Consider the *tensor cone*

$$\Gamma(\mathfrak{g}) := \{(\lambda_1, \lambda_2, \mu) \in P_+^3 \,|\, \exists N > 1 \quad L(N\mu) \subset L(N\lambda_1) \otimes L(N\lambda_2)\}.$$

If $\mathfrak{g}$ is finite dimensional, $\Gamma(\mathfrak{g})$ is a polyhedral convex cone described by Belkale-Kumar by an explicit finite list of inequalities. In general, $\Gamma(\mathfrak{g})$ is nor polyhedral, nor closed. We will describe the closure of $\Gamma(\mathfrak{g})$ by an explicit countable family of linear inequalities, when $\mathfrak{g}$ is untwisted affine. This solves a Brown-Kumar's conjecture in this case. (Received February 08, 2018)