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Michel van Garrel*, MC 253-37, 1200 E California Blvd, Pasadena, CA 91125. *Rationality of some homogeneous spaces.*

In this talk, we describe an explicit birational isomorphism from a special type of torus to a projective space. This generalizes a result by Klyachko that proves a special case of a conjecture of Voskresenskii.

More precisely, a variety X over a field k is said to be stably rational if $X \times_k \mathbb{P}_k^m$ is rational for some $m \geq 0$. The above mentioned conjecture of Voskresenskii states that a stably rational torus over k should be rational. This is widely open. A result of Klyachko gives a positive answer for a certain type of stably rational tori, given by the quotient of $(A \otimes_k B)^*$ by the subgroup generated by A^* and B^* . Here A and B are étale k -algebras of coprime dimension over k .

In our work, we generalize the situation to the case where A and B are *any* finite-dimensional k -algebras of coprime dimension over k . Note that in this case, the quotient is not necessarily a torus anymore. It need not even be an algebraic group. However, we show that it is a rational variety by providing a simple explicit birational isomorphism to a projective space. This is joint work with Mathieu Florence. (Received September 25, 2012)