Real Galois cohomology of semisimple groups

Abstract:

In a 2-page note of 1969, Victor Kac described automorphisms of finite order of simple Lie algebras over the field of complex numbers \( \mathbb{C} \). He used certain diagrams that were later called Kac diagrams. In this talk, based on a joint work with Dmitry Timashev, I will explain the method of Kac diagrams for calculating the Galois cohomology set \( H^1(\mathbb{R}, G) \) for a connected semisimple algebraic group \( G \) over the field of real numbers \( \mathbb{R} \). I will use real forms of groups of type \( E_7 \) as examples. No prior knowledge of Galois cohomology, Kac diagrams, or groups of type \( E_7 \) will be assumed.