Seminar "Algebraic groups"

Tuesday, March 16, 17:15, Zoom channel 675-315-555

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The Albert problem on cyclicity of Albert division algebras

In 1950's Adrian Albert, inspired perhaps by Wedderburn's cyclicity theorem for degree 3 central division algebras, raised the question whether every Exceptional central simple Jordan algebra (now called an Albert division algebra) always contains a cubic cyclic subfield.

The first progress on this problem is due to Holger Petersson and Michel Racine. They proved that the question has an affirmative answer when the base field contains a primitive cube root of unity.

Recently, while attempting a proof of the Tits-Weiss conjecture for Albert division algebras, we proved that every Albert division algebra has an isotope that is cyclic, i.e. contains a cubic cyclic subfield, with no assumptions on the base field.

This result has interesting consequences for algebraic groups, as well as Albert algebras. We will discuss a few of these in the seminar.

Everyone is welcome!