Andrei Rapinchuk (University of Virginia, USA) *On the notion of genus for division algebras and algebraic groups*

Abstract. The famous theorem of Amitsur characterizes finite-dimensional central division algebras over a given field that have the same splitting fields, including infinite-dimensional ones. The situation changes dramatically if one allows only finite-dimensional splitting fields or just the maximal subfields of the division algebras at hand. To quantify these issues, one defines the genus $\mathbf{gen}(D)$ of a central division algebra D of degree n over a field K as the set of classes $[D']$ in the Brauer group $\mathrm{Br}(K)$ represented by a central division K-algebra D' of degree n having the same maximal subfields as D. I will review the results on $\mathbf{gen}(D)$ obtained in the last several years, including the finiteness theorem for $\mathbf{gen}(D)$ when K is a finitely generated field. I will then discuss how the notion of genus can be extended to arbitrary absolutely almost simple algebraic K-groups and report on some recent progress in this direction.