

# Seminarium geometrów

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## Normal generation of Split Chevalley groups

Abstract: It has been known since the 90s that classical matrix groups  $G$  defined over rings  $R$  of algebraic integers are boundedly generated by root elements (think elementary matrices). Work by Kędra-Gal has further shown that if a collection of conjugacy classes generates  $G$ , then it boundedly generates  $G$ . Also it was shown in the case of  $G = SL_n$  by Morris that the bound actually only depends on the number of conjugacy classes (and not the classes themselves) that are taken as a generating set and by Kędra-Libman-Martin that the bound is actually linear in the number of conjugacy classes if  $R$  is a principal ideal domain. In this talk I illustrate how to generalize the latter result to arbitrary rings of algebraic integers and all classical matrix groups by using methods from model theory. I demonstrate this in the case of  $Sp_4(R)$  and also explain (if time allows) how the general behaviour for most classical groups is actually surprisingly uniform but very different from the one of  $Sp_4(R)$  and  $G_2(R)$ .