

## COMMENSURABILITY PRINCIPLES FOR ALGEBRAIC TORI

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ABSTRACT: In 1975, A. Schinzel solved the linear detecting problem for 1-dimensional tori over number fields. We will discuss the relations between local to global detecting properties and local to global commensurability properties for abelian groups with finite torsion. We will apply these results to Mordell-Weil groups of tori and we will give example of a class of tori where the local to global commensurability properties hold and example where they fail. The example leads directly to construction of 1-motives with interesting arithmetic properties. A special example of these 1-motives is Schinzel's 1-motive that appeared in the work of Peter Jossen. At the end of the lecture we will also give a criterion for commensurability using only finite number of reductions. This is joint work with Grzegorz Banaszak.