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Number Theory Seminar

Density of rational points on abelian varieties

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ABSTRACT: A question raised by B. Mazur suggests the following conjecture: Let A be a simple Abelian variety defined over a real number field K. Denote by $A(\mathbb{R})$ the Lie group of its real points and by $A(\mathbb{R})^0$ the connected component of the origin. Then the group $\mathbb{Z}P$ generated by any point P of infinite order in $A(K) \cap$ $A(\mathbb{R})^0$ is dense in $A(\mathbb{R})^0$. Transcendence methods yield weaker statements like the following: Let A be a simple Abelian variety of dimension d defined over a number field K embedded in \mathbb{R} . Let Γ be a subgroup of $A(K) \cap A(\mathbb{R})^0$ of rank $\ge d^2 - d + 1$. Then Γ is dense in $A(\mathbb{R})^0$. Some results can also be obtained on the density in $A(\mathbb{C})$ of subgroups of A(K), when K is any number field embedded into the field \mathbb{C} of complex numbers.

Date: Friday, 30.03.2007 at 15.45pm

Place: HWZ (HG G43)

G. Wüstholz