

INSTITUTUL DE MATEMATICA “SIMION STOILOW” AL ACADEMIEI ROMANE
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Conferința lunară

Recent developments in Arakelov geometry

Jürg Kramer

(Humboldt Univ. Berlin)

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Abstract: The notion of height of a rational point on a projective variety is known to capture its arithmetic complexity. In order to generalise this notion to higher dimensional cycles, Arakelov geometry has been developed. To also include varieties of non-compact type like Shimura varieties, the theory was further generalised so that logarithmically singular metrics could be taken into account. This paved the way to compute heights for such varieties which turn out to be given in terms of special values of derivatives of zeta functions. Presently, we are in the process of generalising these concepts to mixed Shimura varieties which turns out to be very challenging since the involved metrics have more severe singularities than just logarithmic ones. A complete theory is slowly emerging.