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## **Heights of algebraic cycles and special values of $L$ -series**

Steklov Mathematical Institute

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### **1. Faltings heights and Colmez conjecture**

I will talk about the Faltings' heights on the Siegel moduli spaces and their relations with the effective Mordell conjecture, the Colmez conjecture, and the Andre–Oort conjecture.

### **2. Neron–Tate heights and Gross–Zagier formula**

I will talk about the Neron–Tate heights on abelian varieties and their relations with the BSD conjecture, the Gross–Zagier formulae for Shimura curves over number fields, and the Yun–Zhang formulae for Drinfeld moduli of Shitukas over function fields.

### **3. Heights of algebraic cycles and arithmetic Gan–Gross–Prasad conjecture**

I will talk about some canonical heights of algebraic cycles on varieties and their relations with the Beilinson–Bloch–Kato conjecture and the arithmetic Gan–Gross–Prasad conjecture.