Department of Mathematics, BGU

AGNT

On *Wednesday, June ,1 2022*

At *16:00 – 17:00*

In *101-*

Daniil Rudenko (online meeting) (Chicago)

will talk about

Volumes of Hyperbolic Polytopes, Cluster Polylogarithms, and the Goncharov Depth Conjecture

Abstract: Lobachevsky started to work on computing volumes of hyperbolic polytopes long before the first model of the hyperbolic space was found. He discovered an extraordinary formula for the volume of an orthoscheme via a special function called dilogarithm.

We will discuss a generalization of the formula of Lobachevsky to higher dimensions. For reasons I do not fully understand, a mild modfiication of this formula leads to the proof of a conjecture of Goncharov about the depth of multiple polylogarithms. Moreover, the same construction leads to a functional equation for polylogarithms generalizing known equations of Abel, Kummer, and Goncharov.

Guided by these observations, I will define cluster polylogarithms on a cluster variety.