

October 21, from 4:45 p.m. to 6:20 p.m. (Moscow time)
room 16-10 and broadcast via ZOOM

Vasiliy O. Manturov

*The photography method. The state of the art.
Review and unsolved problem*

In 2023, the author formulated the photography method which allows one to solve various equations and to construct invariants of various objects. One starts with some object (say, pentagon) with a state (say, triangulation) and data (say, edge lengths) a data transformation rule (say, a flip of a triangulation). Then by using some geometrical considerations, one can prove “for free” that such data transformation rules give rise to solutions to some equation (say, Ptolemy transformation satisfies the Pentagon equation) and construct invariants of many objects (say, braids). The formula can be taken from any geometrical considerations (say, formulas in the hyperbolic space); having such a formula “for free” one can prove it algebraically and pass to the more abstract objects (say, formal variables instead of lengths). This method is very broad. Here we mention just some directions of further research: invariants of knots, braids, manifolds of any dimension, solutions to the pentagon, hexagon, YBE equations and formulate relations to cluster algebras, tropical geometry, and many other areas of mathematics.

**SCIENTIFIC SEMINAR
“DIFFERENTIAL GEOMETRY AND APPLICATIONS”**

headed by Academician of RAS Anatoly T. Fomenko

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