

BIOGRAPHY SKETCH.

I was born in 1973 in Kaluga, Russia. I attended the mathematical high school # 57 in Moscow, where my perception of mathematics was formed. I got my early undergraduate mathematical education at the Moscow State University, MA degree from Brandeis University, and PhD degree from the University of Tel-Aviv; Joseph Bernstein was my PhD advisor. I then was a member at the Institute for Advanced Study, and a Dickson Instructor at the University of Chicago. January to June, 2000 I was employed by the Clay Institute.

My early mathematical interests were in the field of algebraic geometry (partly formed at the seminar by A.N. Tyurin in Steklov Institute), and geometric methods in representation theory (partly influenced by M. Finkelberg and V. Ginzburg). The subject of my PhD thesis is representation theory of reductive p -adic groups, following the algebraic approach to the theory due (in particular) to Bernstein and Kazhdan. (Later (partly during my work for the Clay Institute) I developed the ideas of the thesis into an algebraic interpretation of Arthur's local trace formula). The central project I am working on now can be viewed as development of a local version of the geometric theory of Langlands correspondence (whose global version is due to Beilinson, Drinfeld, Laumon, Gaitsgory et. al.) The word "geometric" here means that one replaces (following Grothendieck's idea of sheaf-function correspondence) the study of the space of functions on a p -adic group (the subject of the classical representation theory or harmonic analysis for p -adic groups) by the study of the category of (perverse) etale sheaves on the corresponding infinite-dimensional variety (loop group) over the finite residue field. Perverse sheaves on varieties related to loop groups have known and conjectural relations to other parts of representation theory, such as representations of quantum groups at roots of unity, and representations of Lie algebras and algebraic groups in finite characteristics; thus their study yields some new results in these fields.