Preface

Alexander Sergeevich Merkurjev – or just Sasha to his friends – was born in 1955 in Leningrad (now St. Petersburg) Russia. His mathematical talents manifested themselves at an early age. In 1972 he was a part of the eight member Soviet team that won the first prize at the International Mathematics Olympiad for high school students. (Sasha also won a silver medal for his individual performance.)

In the early 1980s Sasha burst on the research scene, first with a proof of a conjecture of John Tate about the K-theory of local fields, then with a proof of a long-standing conjecture relating K_2 of a field to the 2-torsion in its Brauer group. Then, still in his 20s, Sasha (jointly with Andrei Suslin) strengthended the latter result to settle a key conjecture in the theory of central simple algebras. The theorem they proved, now known as the Merkurjev-Suslin theorem, is generally recognized as a high point of 20th century algebra. It can be found in many textbooks and has opened the door to many subsequent developments, including Vladimir Voevodsky's Fields medal winning proof of the Milnor Conjecture in the 1990s.

In the subsequent three decades Sasha has firmly established himself as one of the world's leading algebraists. He has made fundamental contributions in a number of areas, including algebraic K-theory, quadratic forms, Galois cohomology, algebraic groups, arithmetic and algebraic geometry (including higher class field theory and intersection theory), and essential dimension. His research accomplishments, too numerous to detail here, have been recognized with a prize of the St. Petersburg Mathematical Society (1982), a sectional lecture at the International Congress of Mathematicians (1986), the Humboldt Prize (1995), a plenary lecture at the European Congress of Mathematics (1996), the AMS Cole Prize in algebra (2012) and a Guggenheim Fellowship (2013-14).

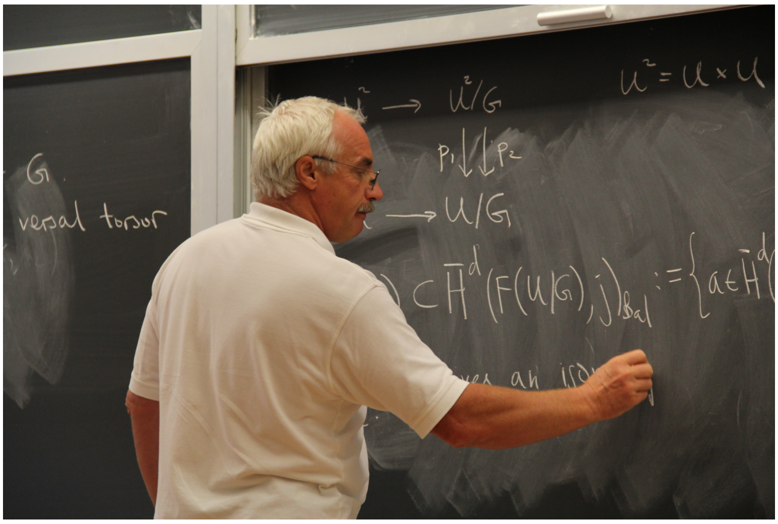
At 60, Sasha is full of creative energy. His lectures are crystal clear and effortlessly delivered, his papers are efficiently written and uniformly of the highest quality. The three research monographs he has coauthored are standard references in the subject. Sasha has been an inspiring thesis advisor to many graduate students, both at St. Petersburg University and at UCLA, where he has been on the faculty since 1997. According to the Mathematics Genealogy Project, eight students have written their Ph.D. dissertations under his supervision at St. Petersburg University and fourteen at UCLA. Throughout his career Sasha devoted a great deal of his time to organizing and running high school mathematical competitions. He served as a member of the organizing committee for the St. Petersburg mathematical olympiad (in 1980-1999) as well as of the national Soviet – and then Russian – olympiad (8 times).

We are happy to dedicate this volume to Sasha on the occasion of his 60th birthday. Documenta Mathematica is a particularly appropriate forum for this volume in view of Sasha's nearly 20 years of service as an editor, since the first issue of Documenta in 1996. In addition to peer-reviewed papers submitted by his friends and colleagues, this issue includes a new crossword by one of Sasha's PhD students who has published puzzles in venues such as the *New York Times*, and also the first English translation of a brief note by Merkurjev that has previously appeared only in Russian.

Happy birthday, Sasha!

P. Balmer, V. Chernousov, I. Fesenko, E. Friedlander,
S. Garibaldi, U. Rehmann, Z. Reichstein

At Mathematisches Forschungsinstitut Oberwolfach[1] in 1982



Lecturing at the Fields Institute thematic program *Torsors, Nonassociative Algebras and Cohomological Invariants* in 2013.[2]

[1]Author: George M. Bergman; Source: Archives of the Mathematisches Forschungsinstitut Oberwolfach

[2]Author: Nikolai Vavilov