Advances in Mathematics 300 (2016) 1–4

Contents lists available at ScienceDirect

Advances in Mathematics

www.elsevier.com/locate/aim

Andrei Zelevinsky, 1953–2013

This volume is dedicated to the memory of Andrei Zelevinsky (30 January 1953 – 10 April 2013), our colleague and our friend.

Andrei was born in Moscow and attended the celebrated mathematical school No. 2, a breeding ground for many famous mathematicians (one of his classmates was Boris Feigin, for example). He graduated from this school in 1969 and entered the Department of Mechanics and Mathematics at Moscow State University. As a member of the USSR International Mathematical Olympiad team—Andrei won a silver medal for the competition—he was directly granted university admission, bypassing cumbersome and not always objective entrance examinations.

It was common for talented students from Moscow State to serve as mentors in leading mathematical high schools. One such mentor in school No. 2 was Joseph Bernstein, who later had great influence on Andrei's mathematics. In early Fall, 1970, Andrei for the first time met Israel M. Gelfand and, as Andrei wrote, this meeting became one of his most life-changing experiences. Andrei attended the Gelfand Seminar, one of the pivotal centers for Moscow mathematics, for almost twenty years. Andrei participated in other seminars, as well, including the seminar run by Alexandre A. Kirillov, his official PhD advisor.

The Gelfand style of doing mathematics: a thorough study of multiple examples, finding hidden and unexpected jewels and then proceeding with a beautiful and deep theory. It was very suitable for Andrei. His own work was rather concrete and very combinatorial. As a true student of Gelfand's school he highly valued the beauty of simplicity in mathematics and, at the same time, was open to fresh abstract ideas.

Andrei navigated the hardships of life in the former USSR with humor and dignity. His reaction to any stupid and undignified act was a sort of surprise: humans just cannot behave like this. But he was also very firm with his principles: it took a lot of civil courage to teach in the early 1980s at underground so-called Jewish People's University

DOI of Publisher's note: http://dx.doi.org/10.1016/j.aim.2016.05.020.

http://dx.doi.org/10.1016/j.aim.2016.06.006

in Moscow for young students who were denied entry into Moscow State. Several of his students from there later became distinguished mathematicians.

He worked in the mathematical laboratory at the Institute of Earth Science (1977–1985) and the Council for Cybernetics of the Soviet Academy Sciences (1985–1990). In 1990 Andrei and his close collaborator at that time, Mikhail Kapranov, were invited by Cornell University, and in 1991 Andrei accepted an offer from Northeastern University. He and his family lived in Sharon, not far from Boston. Andrei and his wife, Galina, loved Sharon and liked to take their friends for long walks in surrounding parks. His adjustment to American life, including American academia, went surprisingly well. Many of his best results, including the theory of cluster algebras, were obtained at Northeastern.

His behavior after moving to the West was essentially the same: always polite, always frank, and always respectful. He was never jealous of anybody's success and was very supportive to his friends and colleagues. Andrei liked to work with young people, and he payed a lot of attention to their progress.

Among Andrei's distinctions was a Humboldt Research Award (2004) and a University Distinguished Professorship at Northeastern University, the latter having been bestowed upon him posthumously. He gave an invited talk at the International Congress of Mathematicians in 1998. Andrei served on the Scientific Advisory Board of MSRI, and he was a member of the editorial boards of "Advances in Mathematics", "Algebra and Number Theory", "International Mathematical Research Notices", "Journal of Algebraic Combinatorics", "Selecta Mathematica", and "Transformation Groups".

In Fall 2012 Andrei was a key participant in the "Cluster Algebra" program at MSRI, which attracted leading researchers in the field from all over the world. He became ill in December 2012 and was never able to recover. Andrei's mathematical and personal presence will be sorely missed. This volume is a testament to the breadth, depth, and impact of his research and mentoring.

Andrei is survived by his parents Vladlen and Natalia, his wife Galina, his children Leo and Katya, and his grandchildren Gregory and Julia.

Andrei Zelevinsky's mathematical research

The first papers by Andrei were published when he was an undergraduate student. They were devoted to integral geometry and representations over finite fields. A new substantial step in his activity began when Gelfand suggested to him that he work with Joseph Bernstein on p-adic groups, a new subject in Moscow mathematics. As was common in Moscow, they started their studies with a careful analysis of representations of GL_n. Their survey paper was published in 1976; it contained both classical and original results. The development of these ideas appeared in their paper in "Annales scientifiques de l'École normale supérieure", where they introduced the notion of normalized Jacquet functor, and the Geometric Lemma, and proved the irreducibility criterion. In the next paper Andrei gave a complete classification of irreducible representations of GL_n in terms of cuspidal representations. This description is now called the Zelevinsky classification.