Dorin Popescu, Professor and Mathematician

We present Professor Dorin Popescu in front of our honorable readers.

Born on March 21, 1947, in the village Pătărlagele in Buzău district, Romania, Dorin Popescu discovered mathematics at the school in his village, due to a young teacher, Nicolae Zugravu. He learned then in the Bogdan Petriceicu Hasdeu College in Buzău till 1964, when he had passed the entrance examination becoming a student at the Faculty of Mathematics of the Bucharest University. He loved mathematics and he worked hard, participating still in the first year of faculty at a scientific seminar dedicated to studying the category theory organized with the students by the young researcher at the Mathematical Institute of the Academy, Nae Popescu.

So Dorin Popescu met the branch of mathematics which becomes the love of his life, algebra, and he started to do original researches as a student. Alone or in collaboration with George Georgescu, he published, during his studies, four original papers, - among then, three have been published in France, two of them in the prestigious journal of the French Academy *Comptes Rendus de l′Academie des Sciences*. In 1969, Dorin Popescu has graduated and he remained at the faculty as a "preparator" becoming then an assistant at the Chair of Algebra. The head of the chair has been then professor Gh. Galbura.

In 1979, he applied for a position of researcher in the Institute of Mathematics, which had been turned into INCREST (National Institute for Scientific and Technical Creativity), where he remained till 1990. At INCREST, Dorin Popescu has had more time for research; this has been the reason for moving there.

Soon after graduation, Dorin Popescu finished his Ph.D. studies under the supervision of the professor Ionel Bucur; this happened in 1974, when he debated his Ph.D. thesis:"*Strong approximations over a discrete valuation excellent ring*", - a thesis highly appreciated, which gave him national and international recognition.

He published more than 20 papers on Artin approximations, Neron desingularizations, Henselian rings, valued rings and fields, continuing, with a lot of novelties and update applications, the ideas from his Ph.D. thesis.

The results obtained by Dorin Popescu in the mathematical research give him a high place among the Romanian algebraists and worldwide recognition. They gave him a first prize for research in 1973 in Athens, conferred by the Union of Balkan Mathematicians, and the Prize of the Romanian Academy in 1979.

At the age of 33, he got, by a competition, a N.S.F. (fellowship) at the Institute for Advanced Studies at Princeton, U.S.A., where he has met great mathematicians and has been known by them. In 1990-1991, he could honored a Humboldt fellowship at the University of Essen, Germany, extended then for a semesters at the Osnabruck University.

Between 1993-1997, Dorin Popescu has been a visiting professor/researcher at universities of Gottingen, Kaiserslautern, Essen, Edinburgh, using grants of DAAD, European grants or Humboldt program. He lectured at many universities and research institutes, in France (Bordeaux, Luminy, Grenoble), in Germany (many places), in U.S.A. (MIT, Berkeley, Los Angeles, Salt Lake City, Urbana-Champaigne), in Canada (Montreal), in Great Britain (Edinburg, Glasgow, Sheffield), in Spain (Barcelona), in Hungary (Budapest), in Poland (Warsaw), in Netherlands (Utrecht), in Austria (Innsbruck), in Japan (Kyoto, Nagoya).

The fields of interest of the professor are commutative algebra and algebraic geometry, that have burst into blossom in the last decades of the last century and are also developing today.

First original results of the Dorin Popescu's research are concerned with:

- Artin approximation and Henselian rings;
- Néron desingularization;
- Projective modules of polynomial rings over a regular ring.

Dorin Popescu has given solutions to some conjectures of M. Artin and Bass-Quillen, solutions which have been presented in the Bourbaki Seminar (1993-1994) by B. Teissier, and that R. Swan has presented and named, in 1998 in his work: "$N\acute{e}ron - Popescu\ desingularization$".

After 1987, Dorin Popescu started to study Cohen-Macaulay modules. Here you are some of the Dorin Popescu's results in this respect:

- Together with Jürgen Herzog and L. O'Carroll, he completed a Knörrer theorem, using it to describe the CM modules over some hypersurfaces.

- Together with Gerhard Pfister, he completed the periodicity theorem of Knörrer in characteristic 2.

- Together with Jürger Herzog, he proved the Pardue Conjecture concerning to regularity and he gave partial answers to Conjectures of Eisenbud-Green-Harris in the Cayley-Bacharach theory and Castelnuovo theory.

- Together with R. Laza and G. Pfister, he described the maximal CM-modules over the cone of the projective curve $V(f), f = X^3 + Y^3 + Z^3$, using the Atiyah classifications of the bundles over $V(f)$.

- Together with C.Baciu, Viviana Ene, Gerhard Pfister, he described maximal CM-modules for surfaces $V(f), f = x^3 + y^3 + z^3 + u^3$, of rank ≤ 2.

- Together with J. Herzog, Dorin Popescu extended the concept of shellable simplicial complex to multicomplexes, studying the filtrations of almost clean modules.

Of course, we could write more about the scientific results of Dorin Popescu which are concertized in more than 80 papers published in prestigious mathematical journals; also about his monographs, which have been well received by the algebraists. We quote some of his monographs:

• *Die Approximationseigenschaft lokaler Ringe*, L.N.M. 634, Springer, 1978.

• *Henselian rings and Artin approximation* (in Romanian, with V. Nica), Bucharest University Press, 1979.

• *Elements of finite group theory*, (with C. Vraciu), Ed. St. Encicl., Bucharest,1986 (in Romanian).

• *Cryptography*, *coding*, *algorithms* (with C. Gherghe)(in Romanian), Bucharest University Press, 2005.

Dorin Popescu is highly considered by his students and colleagues. His lectures are modern and contain many open research problems for the audience. We also know this by the courses he gave for a semester in our faculty and by lectures given by the professor at our schools of algebra.

The last monograph is written for his students in order to present them last applications of the commutative algebra in cryptography.

Professor Dorin Popescu is a demanding supervisor for many young students in his group, introducing them in modern topics, giving them mathematical ideas, looking at their progress, telling them all the time to work hard. He created a real school, with an effervescent scientific life, with contribution to national and international conferences, continuing the school of his predecessors, the professors Gheorghe Galbură and Nicolae Radu.

Together with Nicolae Radu and Mirela Ştefănescu, Dorin Popescu has promoted the National Schools of Algebra, organized first at "Al.I. Cuza" University in Iassy with M. Ştefănescu (1985-1989) and then (1998-today) at the Ovidius University in Constantza, with other organizers from the Bucharest University, the Institute of Mathematics and Ovidius University. The first editions of this School have been a source of ideas and a hope of normality for graduate students who could not go abroad and who did not have the possibility to work in the universities and research institutes. In fact, Dorin has been the main promoter of these schools. After 1998, together with his students in Bucharest, with his friends from Bucharest and Germany, he confers our schools and also our other scientific manifestations an international prestige. The schools remain also today an occasion of knowing modern topics, of meeting great specialists in the studied fields.

The feeling of duty toward the Romanian mathematical community made professor Dorin Popescu to accept, since 2004, to be the president of the Society of Mathematical Sciences in Romania. He is an active chief of this Society; the publications of SMSR became much better, the district mathematical societies have initiated a lot of activities. The Society became again an active factor in the development of the study of mathematics in Romania, the connection between the mathematics in universities and schools has been established again.

We see professor Dorin Popescu many times in every year. He participates at all the scientific algebraic manifestations in our faculty, being almost all the times one of the organizers, he comes at meetings of the Society of Mathematical Sciences in Constantza, he gave us good advice, he helped us always.

We consider him a friend, an adviser, an exemplary model for us.

We are honored because he accepted to receive the title of *Doctor Honoris Causa* of the Ovidius University in Constantza, meaning for us that he highly considers our faculty and he is believing in the present and in the future of our University.

For his 60th anniversary, we wish Professor Dorin Popescu many future successes, good health and strength in his activity.We hope he will go on being our friend.

Mirela Ştefănescu and Viviana Ene