

Professor Nicolae Dinculeanu, promoter of the Romanian Mathematical Analysis School

CONSTANTIN P. NICULESCU

Nearly 60 years ago, an event took place with profound consequences for the fate of scores of generations of high school students: the emergence of the famous textbook *Elements of Mathematical Analysis* for the highschool, written by professor Nicolae Dinculeanu together with his colleague Eugen Radu. This textbook was initially published by the Didactic and Pedagogic Publishing House in 1959 and has been subsequently reprinted many times.

Mathematical Analysis, a relatively new branch of mathematics (if we compare it with Geometry or Numbers Theory), has played a decisive role not only in shaping the most diverse phenomena but also in imposing a high level of rigor to the demonstrations. The decision to introduce the study of mathematical analysis in the high school was undoubtedly beneficial and has been instrumental in boosting the quality of mathematics taught in Romania's faculties. In the late 50s, the old presentation of analysis in terms of large and small infinities was still dominant, and the first attempt to write a high school textbook also assumed this viewpoint (promoted at that time by the influential *Differential calculus* book written by N. N. Luzin). However, things were about to change with the advent of professor Miron Nicolescu's *Mathematical Analysis* handbook in 3 volumes (published between 1957 and 1960). Herein analysis was treated in a modern manner, in terms of 'epsilon and delta'. Unfortunately, this book was aimed at specialists and today its completely forgotten. The one who succeeded in effectively ensuring the promotion of mathematical analysis through well-written textbooks, both didactically and scientifically, was professor Nicolae Dinculeanu. His high school textbook from 1959 was followed in 1962 by the famous 'red manual', Volume 1 of a *Mathematical Analysis* course (entirely conceived by him and aimed at first-year students attending the Faculty of Mathematics at the University of Bucharest). This course was structured in two volumes, the second one being written by professor Solomon Marcus. However, the covers of both volumes featured both authors' names, alongside with the name of the head of the mathematical analysis department at that time, Miron Nicolescu. This first volume, over 700 pages long, was to become very successful, being republished in 1963, 1966, 1971 and 1980. The last edition was printed without the authors' names, because Professor Nicolae Dinculeanu

had left the country in 1976.

The photo, from 1966, captures professor Dinculeanu's image as I remember him from the days of his memorable course of mathematical analysis. Elegant and punctilious, he delivered his lectures with such a remarkable pedagogical talent that even today I wonder what level Romanian mathematics could have reached if courses like Differential Geometry, Mathematical Physics Equations, or the Theory of Probabilities would have been taught by him. Years later, when I myself became a teacher and supervised doctoral dissertations, I remembered many of the small (but important) details of how professor Nicolae Dinculeanu conceived his lectures and worked with us.

In a conversation we had in 2004, in Pitești, he confessed to me that his mentors were Octav Onicescu and Cassius T. Ionescu Tulcea. Under their leadership he has developed his doctoral thesis 'Orlicz spaces of vector fields', defended in 1957. Ionescu Tulcea, a world-renowned analyst, has been his role-model in his research and teaching career. Unfortunately, Ionescu Tulcea left Romania in 1957 and my generation knew him only through his writings.

Scientifically, Professor Dinculeanu's name is related to his research in the theory of measure and vector integration, a field where he unquestionably remains one of the world class leaders. We mention here two of his monographs (printed in Romanian as well): *Integration on Locally Compact Space*, Nordhoff International Publishing, Leyden, 1974 and *Vector Measures*, published by Veb Deutscher Verlag der Wissenschaften, Berlin, in 1966 and by Pergamon Press, Oxford, in 1967. The latter has been and still remains a fundamental book in the theory of measure and integration worldwide.

After 1975, with the abusive dissolution of the *Academy's Institute of Mathematics* (where he worked as a deputy director) began a dreary era for Romanian mathematics, marked by political pressures, due to a serious moral and material crisis. Dozens of top mathematicians decided to leave the country, which would gradually lead to a significant decrease in the level of scientific research.

Faced with the prospect of ending a very succesful international collaboration, in 1976 Professor Dinculeanu chose to leave Romania for the United States and became a professor at the University of Florida in Gainesville.

During those ensuing years, his scientific work has dealt particularly with the theory of stochastic processes and he extended the stochastic integral the vectorial case. This is the subject of his latest monograph, *Vector Integration and Stochastic Integration in Banach Spaces*, published in 2000 by John Wiley & Sons, Inc. On its cover, the author is presented as a 'world famous expert on vector and stochastic integration in Banach spaces'.

Elected honorary member of the Romanian Academy in 2003, professor Dinculeanu has remained the same friendly person, always passionate about all the right causes. The age of 90 finds him ‘on the barricade’. Everyday he discusses with his friends from Romania the latest events, taking action to society’s deviations, suggesting solutions. Although thousands of miles away from his home country, he lives the Romanian reality with passion.

Recently I learned that since 2015 the Mathematical Sciences Section of the Romanian Academy will grant, based on a competition, an excellence award, worth 20,000 lei, offered by Professor Nicolae Dinculeanu. This award is intended for young mathematicians from Romania with worthwhile results in mathematical research and will be granted every 4 years, at the Congress of the Romanian Mathematicians. Professor Dinculeanu decided to create this award as a token of his gratitude to the country where he was born, where he lived and where he achieved his professional career. A truly sublime gesture!

We thank you, dear professor, for everything that you’ve done for us and from our hearts we wish you many happy returns!

Constantin P. Niculescu

Department of Mathematics, University of Craiova

E-mail: cpniculescu@yahoo.com