Seminars:

"THE CONVEXITY THEORY" and

"THE BEST MATHEMATICAL APPROXIMATION AND PROGRAMMING"
(Cluj, December 1-2, 1972)

The convexity theory, a branch of mathematics that sprang up between the two world wars, has acquired a wide development these last years due in the main to its multiple uses in many distinct fields of science. It will do to recall here the part kept by the property of convexity in the optimization theory, as well as the fact that the entire mathematical theory of production and economic growth is grounded on the hypothesis of the existence of convex technological sets. At the same time, modern numerical analysis makes use of many results and concepts of the convexity theory.

Seminars devoted to "The convexity theory" and "The best mathematical approximation and programming" were held at Cluj on December 1—2, 1972 under the auspices of the Cluj branch of the Romanian Society of Mathematical Sciences. Specialists pertaining to many academic centres in our country attended the meetings of the seminars. The papers submitted illustrated present concerns of research workers in the convexity theory and its applications. Among these papers, most interesting as regards the foundation of the convexity theory were the following: "Remarks on convex functions inequality" (academician Tiberiu Popoviciu); "The concept of convexity in conformable representation" (prof. Petre T. Mocanu); "On the concept of shape" (prof. Elena Popoviciu); "Cones and measures of probability" (A. Lenart); "Points equally distant for families of convex and compact sets in Minkovski's spaces" (Dr. Alex. Nemeth).

At the same time, papers dealing with possibilities of using methods of the convexity theory in econometrics and operational research were submitted for consideration. In this line, in his paper "Algorithms to solve discrete variables dynamic models of economic growth" M. Altăr suggested an one-sector model for whose solving a variant of the maximum principle is used. Based on the optimality conditions obtained, the author gives an algorithm

for computing optimal trajectories. Dr. Ladislau Nemeti in a paper called "Serial production scheduling", after enunciating the mathematical model of the scheduling problem, examined the disjunctive linear programming which results from the model, and expounded the solving methods.

Mathematical programming was the object of several papers in which stress was laid on new qualitative aspects and properties, as well as on the possiblities of numerical solution.

In his paper "On polynomial programming", prof. I. Marusciac described some methods meant to solve problems of mathematical programming in which both the function objective and the restrictions are polynomials. The methods worked out are based on concepts of geometrical programming. These methods consist in principle in drawing up geometrical programs fairly well approximating any polynomial program.

Dr. Wolfgang Breckner, in his paper "On a duality theorem in convex programming", approached a convex programming problem defined in o local topological vectorial space convexly ordered, stating a duality theory which generalizes the duality theorem of linear programming in vectorial spaces with finite dimension.

In his paper "Computation programs for the numerical solving of non-linear programming problems", Vincenţiu Dumitru described several computation programs worked out by the Economic Informatics Laboratory of the Academy of Economic Studies in order to solve non-linear problems eventually using the derivative. The author also submitted a few remarks on the convergence velocity and accuracy.

In a paper containing "Remarks on the penalty method for minimizing convex functionals", dr. S. Cruceanu discussed several points related to the application of this method to reflexive Banach spaces. The results obtained have been applied to a problem of mathematical statistics.

At the end of the two seminars a table round on the "Ways of applying mathematical methods in enterprises" was organized.

The scientific meetings at Cluj served as an excellent means of mutual information of research workers and professorial staff concerned with the convexity theory and its applications.

Dr. Ştefan Cruceanu