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IOAN I. VRABIE — IN MEMORIAM

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Professor Ioan I. Vrabie was a leading specialist in the theory of infinite dimensional differential equations and nonlinear analysis. In 1963, George Minty discovered an important result, which was the starting point of a new domain of functional analysis: the theory of nonlinear, continuous, monotone operators. Namely, he found that a nonlinear monotone and coercive operator in a Hilbert space is surjective. Extended by Felix Browder to monotone operators defined in a dual pair of reflexive Banach spaces and used afterwards to the existence theory of nonlinear elliptic equations, this fundamental result became a fundamental theoretical instrument in the theory of nonliner PDEs of comparable importance to the topological degree method or the Hille–Yosida theory.

Later on in the seventies, it inspired T. Kato, Y. Komura, M.G. Crandall, A. Pazy, H. Brezis and other authors to develop the theory of nonlinear semigroups of contractions and of nonlinear Cauchy problem in Banach spaces with direct applications to the existence theory of nonlinear parabolic and hyperbolic equations. This is the domain where Ioan I. Vrabie had some important contributions and produced some influential works.

For instance, his first paper is about the well-posedness of the Cauchy problem in Banach spaces, where the nonlinear term is the sum of a continuous, monotone operator and a compact one. It is a very nice and important result which will remain in literature and was later on developed by a long list of authors. On the other hand, the compactness of nonlinear infinite dimensional semigroups and of dynamic flows was one of his permanent scientific interests.

In what I am writing I should remember his results on the flow invariance theory and also a very important result published in early nineties about the existence of periodic solutions to nonlinear evolution equations.

Ioan Vrabie was a very gifted and creative mathematician with vast knowledge not only in analysis, but also in foundations of mathematics as well. He was a great professor, a dedicated teacher and the author of several important textbooks as well as monographs. Internationally recognized as a leading specialist in the theory of nonlinear evolution equations, he is the author of a very consistent mathematical work which will survive him. I should also mention his refined intellect and entire devotion to the academic values and principles. Rephrasing an old soldiers song, we can say about him that he belonged to the narrow category of men who never die, but simply fade away.