CONFERENCES ON GENERALIZED FUNCTIONS: FROM THE BEGINNING TO THE PRESENT

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The idea of organizing an international conference on generalized functions in Poland came to our minds when we realized that exactly twenty years were going to pass in 2007 from the death of Professor Jan Mikusiński. We considered it a good opportunity to commemorate this outstanding Polish mathematician, the creator of mathematical foundations of the operational calculus and the sequential theory of distributions, who was in fact an initiator of international cooperation in the theory of generalized functions and international conferences in this area.

The conferences on generalized functions have a long history and difficult beginnings. In the fifties, prior to the arrival of Professor Mikusiński in Katowice, this region of Poland was, according to opinions of witnesses of those times, a mathematical desert: only one person had a PhD in mathematics. Nevertheless Jan Mikusiński and his young students (P. Antosik, W. Kierat, S. Krasińska, K. Skórnik, later A. Kamiński, S. Lewandowska, P. Hallala, Z. Sadlok, Z. Tyc, C. Kliś, C. Ferens, J. Burzyk, P. Mikusiński) started to organize, in the nearby Beskidy mountains, conferences which attracted many mathematicians from Poland and abroad. The main subject of the conferences, initiated by the two meetings at Szczyrk 1963 and Wisła 1964, was the theory of generalized functions. Already the first few conferences were attended by several known mathematicians from Poland (A. Bielecki, K. Goebel, A. Hulanicki, J. Kisyński, S. Kwapień, S. Łojasiewicz, H. Marcinkowska, W. Matuszewska, J. Musielak, J. Mycielski, W. Orlicz, D. Przeworska-Rolewicz, S. Rolewicz, C. Ryll-Nardzewski, R. Sikorski, Z. Szmydt, L. Włodarski, Z. Zieleźny, W. Żelazko) as well as by a number of mathematicians from abroad (L. Berg, E. Gesztelyi, A. Rényi, B. Stanković).

However the most important event was the 1966 conference on generalized functions (let us call it GF '66), the first really large international conference in this field, organized in Katowice by Jan Mikusiński and his team just after the Moscow International Congress of Mathematicians. More than 70 participants from various countries, among them many

well known mathematicians, took part in the conference. Let us mention only some of the names: T. K. Boehme, J. Dieudonné, H. Komatsu, J. Korevaar, J. L. Lions, W. A. J. Luxemburg, G. Marinescu, M. A. Naimark, A. P. Prudnikov, L. Schwartz, W. Słowikowski, S. L. Sobolev, G. Temple, L. Waelbroeck, J. Wloka.

The GF '66 conference can be considered as the beginning of a long series of (smaller or bigger) international conferences on generalized functions and related fields organized quite regularly, first—in the sixties yet—in Poland (Jaszowiec, Szczyrk, Wisła, Zakopane), then also in other countries. Let us give here a list of places of next conferences: Srebreno (Yugoslavia) 1971, Szczyrk 1971, Rostock (East Germany) 1972, Wisła 1973, Szczyrk 1974, Varna (Bulgaria) 1975, Wisła 1976, Szczyrk 1978, Oberwolfach (Germany) 1978, Szczyrk 1979, Moscow 1980, Katowice 1983, Bechyně (Czechoslovakia) 1984, Debrecen (Hungary) 1984, Orlando (USA) 1987, Varna 1987, Dubrovnik (Yugoslavia) 1987, Oberwolfach 1988, Katowice 1988, Krężelka (Poland) 1989, Varna 1991, Warsaw 1993, Bankya (Bulgaria) 1994, Orlando (USA) 1995, Warsaw 1995, Varna 1996, Novi Sad (Yugoslavia) 1996, Vienna 1997, Blagoevgrad (Bulgaria) 1999, Warsaw 1999, Pointe-à-Pitre (France, Guadeloupe) 2000, Novi Sad 2002, Borovets (Bulgaria) 2003, Novi Sad 2004.

These conferences inspired the development of the theory of generalized functions and its applications in various areas of mathematics and physics. They opened new possibilities for international cooperation and for close contacts and long-lasting relations between mathematicians from various academic centers. We personally owe very much to those conferences and the possibilities they created.

The idea of organizing an international conference on generalized functions again in Poland to commemorate Jan Mikusiński was accepted by our colleagues from Poland and abroad, who cooperated with us in the Organizing Committee. Let us express our special thanks to Professors O. Łopuszański, G. Łysik, M. Oberguggenberger and S. Pilipović. Several known mathematicians agreed to form the Scientific Committee. Finally, the conference under the name *Linear and Non-linear Theory of Generalized Functions and Its Applications* (abbreviated GF '07) was held at Będlewo from September 2 to September 8, 2007.

The conference aroused a pretty large interest: the book of abstracts prepared prior to the conference contains 86 abstracts and names of 93 participants. Finally, there were 79 participants from 18 countries.

Plenary and ordinary scientific sessions embraced a large variety of topics in the analytic and algebraic theories of generalized functions and their applications in various fields of mathematics and physics. The topics included: the structural properties of the spaces of distributions, ultradistributions, hyperfunctions, generalized hyperfunctions and other generalized functions, regular and irregular operations on generalized functions, linear and non-linear problems in ordinary and partial differential equations, differential and pseudodifferential operators (with singularities), semigroups of generalized functions, equations on networks and applications, the Colombeau theory and its generalizations with applications, product of generalized functions, convolution and convolutors of generalized functions, convolution equations and algebras, convolution quotients and algebraic constructions of generalized functions, generalizations of oper-

ational calculus, fractional calculus, integral transforms, series and asymptotic expansions of generalized functions, boundary values in distribution, ultradistribution and hyperfunction spaces, spectral and microlocal analysis in spaces and algebras of generalized functions, infinite dimensional complex analysis, modulation spaces, applications in probability theory and generalized stochastic processes, applications in physics and engineering.

A special Jan Mikusiński Commemoration Session was organized in connection with the twentieth anniversary of the death of Jan Mikusiński. The chief talks of the session were delivered by participants of the GF '66 conference: Krystyna Skórnik, Piotr Antosik and Hikosaburo Komatsu. The main lecture, *Professor Jan Mikusiński – the 20th anniversary of his death*, was given by K. Skórnik. The text of her presentation, included in this volume together with interesting photos and a map, contains biographical material which is wider in many respects than in earlier articles of various authors. A special atmosphere during the seminars, conferences and meetings with Professor Mikusiński was recalled by one of his students and a close collaborator, P. Antosik, in the talk entitled *On Professor Jan Mikusiński's seminar in Katowice*. In the third talk, H. Komatsu shared with the audience his interesting memories about the Katowice 1966 conference and Jan Mikusiński's visits to Japan. Later several participants (R. Estrada, R. Gorenflo, A. Kamiński, F. Mainardi, J.-A. Marti, M. Oberguggenberger, S. Pilipović, L. Rodino and M. W. Wong) presented reminiscences and impressions of their contacts with Jan Mikusiński or with his work. The session ended with very personal recollections of Piotr Mikusiński about his father.

Unfortunately, it is not possible to include all these interesting presentations in this volume. For other biographic materials containing also interesting remembrances and opinions of various mathematicians about Professor Jan Mikusiński we refer to [2, 1, 3, 4].

More information about the conference can be found at www.impan.gov.pl/~gf07.

The next international meeting on generalized functions was announced to be organized in Vienna in August 31 – September 4, 2009, under the name *International Conference on Generalized Functions*, GF 2009.

At the end, we would like to avail ourselves of this opportunity to express our personal gratitude to all people and institutions that made the conference possible, including the Institute of Mathematics of the Polish Academy of Sciences, the Banach Center and the University of Rzeszów and their staff. We also thank heartily all members of the Organizing and Scientific Committees and, in particular, our colleagues from the University of Rzeszów. Finally, we give our apologies for a delay in publishing this volume, partly due to some unexpected personal problems.

References

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