

Newsletter of IMPAN



INTERNATIONAL
PROGRAMS

BANACH
CENTER

POLISH
MATHEMATICIANS



International programs

Asymptotics of Operator Semigroups (AOS) Professor Yuriy Tomilov

e-mail: tomilov@mat.uni.torun.pl

The aim of the project is to create an international net of institutions to cooperate in investigating the asymptotic behaviour of operator semigroups.

Asymptotics of operator semigroups occupies an important place in the general theory of semigroups, as well as in operator theory in general. It has numerous applications to partial differential equations and mathematical physics.

On the other hand, recently the development of the asymptotic theory of operator semigroups has slowed down, due to the necessity of introducing new diverse techniques, tools and methods, often coming from distant mathematical areas. Today, progress in this theory depends on solving several long-standing open problems, where success is mainly based on synergy between different branches of analysis: harmonic analysis, complex analysis, functional analysis and differential equations.

Therefore, to carry out the EU project "Asymptotics of Operator Semigroups" within the Marie Curie program IRSES (GA-2012-318910 Acronym: AOS), an international consortium was created, headed by IMPAN, grouping 17 universities from Europe, Israel, USA, Australia and New Zealand, including scientific units representing different areas of mathematics with common interest in asymptotics of semigroups:

- Institute of Mathematics of the Polish Academy of Sciences,
- Oxford University,

- Ulm University,
- Technology Institute of Karlsruhe,
- University of Lille,
- Technical University of Dresden,
- Nicholas Copernicus University in Toruń,
- Institute of Mathematics of the Czech Academy of Sciences,
- University of Marseille,
- Tel-Aviv University,
- University of Missouri, Columbia,
- Northwestern University,
- William and Mary College,
- University of North Carolina,
- Kent State University,
- University of New South Wales,
- Auckland University.

In particular, the project includes a detailed study of: asymptotic and exponential stability of operator semigroups on Banach spaces; connections between generalizations of exponential dichotomy of evolution families and the theories of Fredholm and Witten indices; quasi-hyperbolic semigroups and their relations to quasi-Anosov flows; stability of asymptotics of semigroups with respect to perturbations; and problems on the borderline between ergodic theory, dynamical systems and semigroup theory, like recurrence, rigidity, mixing, rate of convergence of abstract iteration processes etc. The results obtained will be applied to concrete partial differential equations or dynamical systems.



Towards regularity

Professor Wojciech Zajączkowski (FLUX)

e-mail: W.Zajaczkowski@impan.pl

"Towards regularity" is a project devoted to the mathematical analysis of a wide spectrum of problems originating from different domains of real world applications. They include: fluid mechanics, aerodynamics, geophysics, phase transitions, image processing and meteorology. The language for rigorous formulation of models for these phenomena is the theory of partial differential equations.

The project is divided into four distinct research topics, which include:

1. Compressible Navier-Stokes equations
2. Crystal growth and image processing
3. Regularity criteria
4. Asymptotic analysis

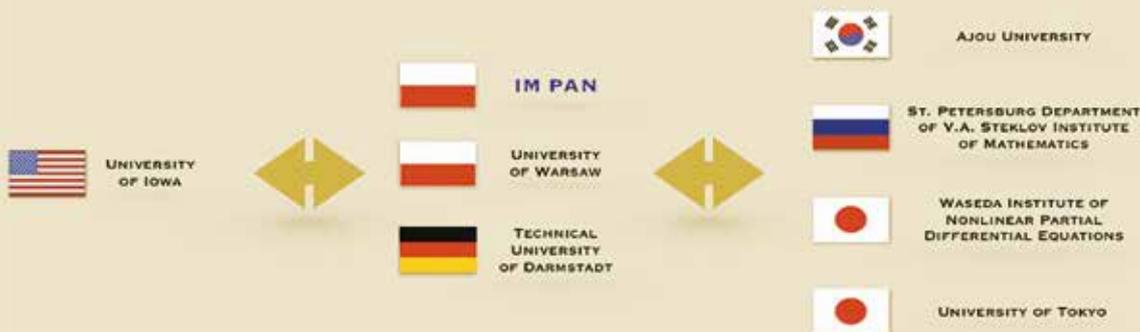
These research topics have been thoroughly studied in Europe, Russia, Korea, Japan and the USA. However, the research fragmentation hinders the potential progress and reduces the possible impact of the results. Therefore, the proposed project is aimed at strengthening bounds between the research centers, creating the basis for efficient development of new ideas and solutions. It is supposed to provide favorable conditions for mathematicians from different parts of the world to work together on the major up-to-date problems.

It is well known that researchers in mathematics often specialize in similar techniques within a given

institution. This results in a certain fragmentation of research and creates artificial barriers, limiting a possible general impact of results created by a particular school. Our goal is to overcome such a fragmentation by direct exchange of knowledge and ideas within our network. A combination of different techniques or even points of view on mathematics, which may seem unrelated at a first glance, can result in surprising effects leading to the creation of new mathematical tools. Their possible applications may easily exceed the scope of the project.

We expect the project to result in creating new directions of cooperation and tightening the existing bounds between the partner countries. Well-established cooperation between the European partners is the basis for the project. Scientific staff exchange at all the levels will lead to strengthening these bounds giving the prospects for even more efficient collaboration in the future.

The project is supported within Marie Curie Actions IRSES type program. It began in January 2013 and is scheduled until the end of December 2016. Within four years we plan to have over 150 month-long secondments, from which over 1/3 is reserved for IM PAN employees. In November 2013 we additionally were awarded a matching grant from the Ministry of Science and Higher Education, with the purpose to jointly cover all secondments costs.



Impan International Fellowship Programme (IMPACT)

Coordinator: Piotr M. Hajac

e-mail: P.M.Hajac@impan.pl

IMPACT is a 5-year long International Postdoctoral Fellowship Programme co-financed by the EU through the Marie Curie Action "Co-funding of regional, national and international programmes (CO-FUND)". It is also partially supported by the Polish Ministry of Science and Higher Education. IMPACT is currently the only COFUND-project run in Poland.

POSTDOCTORAL FELLOWS IN IMPACT

I studied at the Institute of Mathematics of the Czech Academy of Sciences and the Faculty of Mathematics and Physics of the Charles University in Prague under the supervision of Jindřich Zapletal. I am interested in applications of logic to other areas of mathematics. In particular, I specialize in descriptive set theory and countable and metric model theory. I try to follow the recent program of applying techniques from these disciplines to areas such as functional analysis, topological group theory, topological dynamics, etc., especially in cases where classical methods were not successful.

My project in IM PAN consists mainly of extending the countable model theoretic methods (Fraïssé theory, Hrushovski construction, etc.), that were originally used to produce some countable discrete structures with certain properties, to a non-discrete metric (topological) context. Thus far, this led to constructions of certain universal Polish groups that are of interest to topological group theorists.

Another (closely related) activity is my search for a connection between model-theoretic properties

I am an IMPACT postdoctoral fellow at Institute of Mathematics of PAN in Warsaw. I defended my Ph.D.-thesis "On the circle functions with a flat interval and Cherry flows" on 12 December 2013 at the Mathematical Department of the University of Orsay (Paris XI).

My research work is essentially concentrated on dynamical systems in low dimensions. The centerpiece of my interest is a class of circle endomorphisms with a flat interval and its applications. The most interesting application is the study of a flow on the bi-dimensional torus: the Cherry flow. I study its topological, metrical and ergodic properties. This type of problems originate in theoretical physics, in particular in mechanics.

The programme offers the total of 10 years of fellowships, which average to 2 positions each year. All nationals not residing in Poland and working in any area of mathematics are eligible to apply. IMPACT is directed and coordinated by Piotr M. Hajac, Feliks Przytycki, and Andrzej Sitarz. The contact person for practical details is Monika Wysocka. Current IMPACT postdoctoral fellows are Michal Doucha and Liviana Palmisano. Here are their profiles:

of homogeneous structures and topological properties of their automorphism groups. A lot of research has been recently done on non-Archimedean Polish groups (closed subgroups of the permutation group of integers) as they precisely correspond to automorphism groups of ultrahomogeneous discrete countable structures. This correspondence turned out to be very useful. Similarly, general Polish groups correspond to automorphism groups of "almost ultrahomogeneous" metric structures, and this is a connection I plan to explore.

If one has a clear plan what to work on, and an idea how to approach problems he/she wants to solve (including optimism that it will work out), then working as an IMPACT-fellow enables him/her to fully focus on that project in a great working environment in IM PAN. There are no other duties than working on the project, and possibilities to travel and present results at conferences all year round.

Michal Doucha

My research can be considered to be at the interface between the more classical techniques in real dynamical systems theory and the more modern techniques in ergodic dynamics and theoretical physics.

At IMPAN there is an active research group in low dimensional dynamical systems. The research themes of this group corresponds very well to my current scientific interests concentrated on dynamics of the Cherry flows. My stay in Warsaw is provides me with a great opportunity to discuss and broaden my current research interests.

Liviana Palmisano



Scientific Events

Andrzej Mostowski Centenary Conference

10 October 2013 – 13 October 2013 | Warsaw

The meeting Mostowski 100 took place during the weekend of 11–14 October 2013. It was a centenary conference organized on the anniversary of the birth of Andrzej Mostowski, one of the most famous Polish mathematicians of the last century, a mentor and a teacher to generations of Polish logicians.

The topics of this conference were focused on the contemporary research in logic that is influenced by the work of Mostowski. This includes set theory, model theory, models of arithmetic and foundations of computer science. The talks took place at the Faculty of Mathematics, Informatics and Mechanics of the University of Warsaw. The meeting was co-organized by IMPAN and the Polish Mathematical Society. The opening ceremony, led by the President of the Polish Academy of Sciences, took place on Friday morning and during the ceremony Dr Einar Fredriksson was given the honor membership of the Polish Mathematical Society.

The speakers were invited in two categories the Heritage Track and the Perspectives Track, and all talks were one hour plenary presentations. In the Heritage Track we had the lectures of Mikołaj Bojańczyk, Harvey Friedman, Thomas Jech, Menachem Magidor, Yiannis Moschovakis, Jouko Väänänen, Jan Woleński, W. Hugh Woodin. The talks in the Perspectives Track were given by Mirna Džamonja, Leszek Kołodziejczyk, Krzysztof Krupiński, Angus Macintyre, Johann A. Makowsky, Ludomir Newelski, Anand Pillay, Christian Rosendal,

Zlil Sela and Sławomir Solecki. The talk of Professor Makowsky, titled Andrzej Mostowski, the man and his legacy, was about the life and achievements of Andrzej Mostowski.

The conference had a rich social program. The welcome party took place on Friday evening. On Saturday evening we had a banquet which took place in Pałac Kazimierzowski at the Old Campus. Both the welcome party and the banquet went off extremely well and gathered many former students of Professor Mostowski. During the banquet we were honored by the presence of Janusz Onyszkiewicz, the former Minister of National Defense, a famous alpinist and logician who did his PhD under the supervision of Andrzej Mostowski. On Friday evening we had a soirée musicale with Harvey Friedman giving a piano recital. Professor Friedman played Bach, Mozart, Beethoven, Schubert, Chopin, Brahms, and Sousa.

The conference was definitely a great success and the number of participants surprised the organizers. There were more than 100 participants at the meeting, with about 45 international and 55 Polish participants. Among them there were many students and postdocs whose research is still inspired by the work of Andrzej Mostowski.

Marcin Sabok

In memory of Andrzej Mostowski

Professor Mostowski passed away when I was 25 and he was 61 years old. I got to know him better from my third year at the university, so it was altogether only five years. Those were the academic years 1970/71 until 1974/75. Unlike with Professor Grzegorzczuk, I was not on the first name terms with him, in fact no one in our group of his students and seminar participants was. It could be that the times were still different then. The Boss had his office in the room 908 in the Palace of Culture, and his students (members of the division, or “Katedra” as it was then called) were in the room 919. I remember one conversation I had with him in the room 908. It may have been about my master thesis. I respectfully addressed him Professor (Panie Profesorze, in Polish). At some point he could not stand it and erupted,

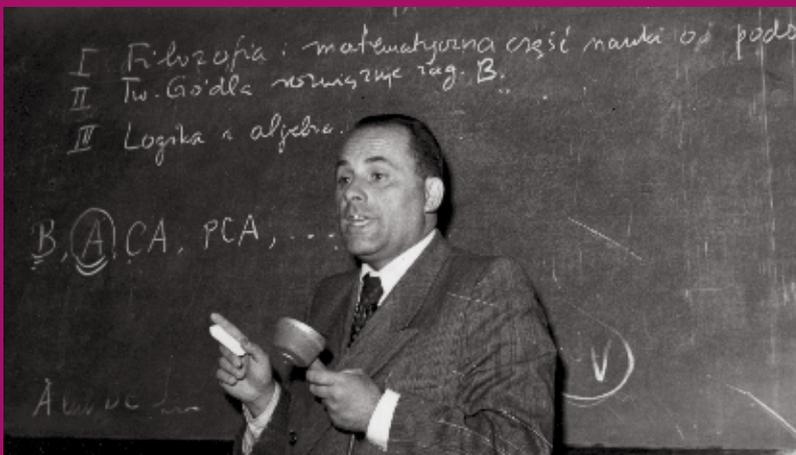
“How many times did you say Professor? Could you count!” Among us, we called him the Boss. It expressed both humor and cordiality. There were rumors and anecdotes about objectionable activities taking place in the room 919, and what would the Boss say if he knew. In fact, usually uninterrupted card play went on in 919 and the room was filled thick smoke from cigarettes and cigars Wiktor Marek liked. What would the Boss say! Once things got out of control when the door to the office caught fire from a cigarette butt thrown into the wastebasket. Unfortunately, the Boss got to know about this but, as far as I know, he said nothing.

Zofia Adamowicz

Andrzej Mostowski (1913–1975) belongs to the leading Polish mathematicians. He laid his outstanding contribution in the field of logic and the foundations of mathematics. He submitted his habilitation thesis Axiom of choice for finite sets to the Jagellonian University and it was approved in 1945. In the thesis he examined the independence of various forms of the axiom of choice for finite sets. He was nominated an extraordinary professor in 1947, then an ordinary (tenured) professor in 1951.

Research interests of Professor Andrzej Mostowski covered many areas of the foundations of mathematics: set theory and its metamathematics, theory of models, generalized quantifiers, the hierarchy of sets of natural numbers, metamathematics of Peano arithmetic and arithmetic of the second order. One of the best of his results in mathematical logic is the Mostowski collapse lemma.

From 1946 until his death in Vancouver, Andrzej Mostowski worked at the Mathematical Institute of the University of Warsaw, where from 1953 he was head of the Department of Algebra. Simultaneously, from 1949 until 1970 he was employed at IM PAN (State Mathematical Institute till 1952), where he was the head of the department of Foundations of Mathematics. In the years 1956–1964 professor Mostowski was the scientific director of IM PAN.



↑ Andrzej Mostowski during the VIII Polish Mathematical Congress, 1953



↑ P.S. Aleksandrov, K. Kuratowski, A. Mostowski during the VIII Polish Mathematical Congress, 1953

Topology and Geometry of Configuration Spaces 6–8 December, 2013 and 16–19 January, 2014 | Będlewo

In December 2013 and January 2014 we had two long weekends of block seminar in Będlewo. A block seminar is an intensive seminar type activity which allows covering the program of about 30 hours of normal seminar meetings in much shorter time.

The seminar participants were students and doctoral students from Berlin (Freie Universität and Humboldt Universität) and Poland (IM PAN and Warsaw and Wrocław Universities). All lectures were delivered by students; besides lectures we had moderated discussion / question & answer sessions.

The topic was “representation stability”, a new phenomenon in group cohomology recently discovered by Tom Church and Benson Farb. A cherry on the cake were Farb, two lectures in January in Berlin.

Organizers were Gavril Farkas (Humboldt Universität Berlin), Tadeusz Januszkiewicz (IM PAN) and



← Benson Farb, the Univ. of Chicago

Holger Reich (Freie Universität Berlin). Funding came from both Berlin Universität and IM PAN.

The most impressive to the undersigned was seamless collaboration of Polish and German students. This is a form of activity which should be used more often.

Tadeusz Januszkiewicz

YOUNG SCIENTISTS AT IM PAN

There are currently employed at IM PAN over 35 young researchers: 21 mathematicians on tenure-track positions and 16 on temporary postdoc positions.

→ In Common Room



NEWS

IM PAN Prize 2014 awarded to Prof. Rafał Łatała for his achievements in the theory of probability and convex geometry. Scientific Awards ceremony took place on April 24 during an open meeting of Scientific Council of the Institute. Rafał Łatała delivered a plenary lecture entitled “On the boundedness of Bernoulli processes”.

→ IMPAN's Director Feliks Przytycki hands the diploma to Rafał Łatała, the laureate



Banach Center



↑ During the meeting



MEETING OF THE SCIENTIFIC COUNCIL OF THE BANACH CENTER



The Scientific Council of the Stefan Banach International Mathematical Center met in Warsaw, traditionally in May 09–10, 2014 in order to evaluate applications for the support for conferences taking place either at IMPAN or at the Mathematical Research and Conference Center in Będlewo .

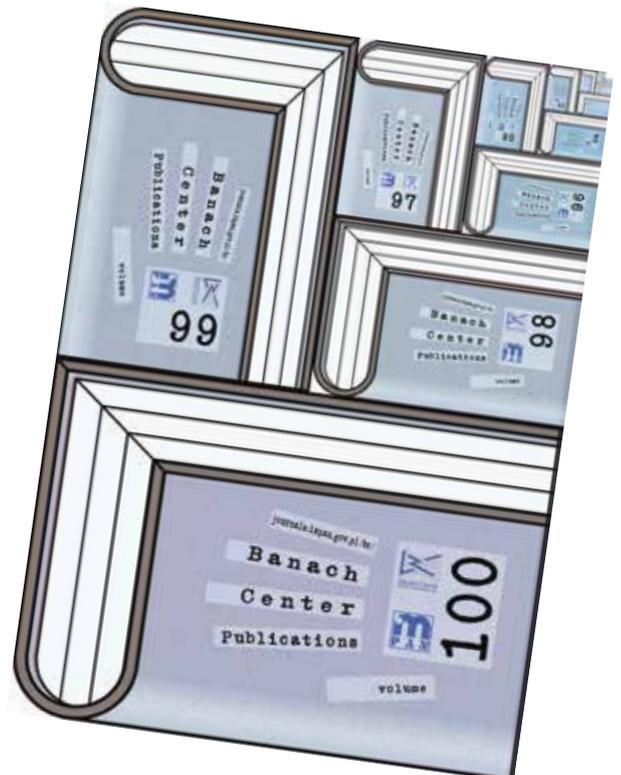
It was the first meeting of the members of the Council in new term 2014–2017.

There were 19 applications to be evaluated and 1 application concerning smaller event to be presented by the Chairman of the Banach Center to the Scientific Council only for information. The Council was to evaluate each application in the scale from 0 to 8, indicating how big the financial support of the Banach Center should be.

It was not a coincidence that on the same day, before the meeting of the Scientific Council's, there were celebrations on the occasion of publishing 100 vol. of *Banach Center Publications* at the Institute. The Chairman of the Banach Center, prof. Stanisław Janeczko made a short presentation on the accomplishments of the Banach Center and its history, accompanied by food and drinks, he also presented to the guests an imposing, high row composed of 100 volumes of the magazine.

Additionally, prof. Janeczko thanked prof. Marta Sanz-Solé for her engagement in serving as a member of the BC Scientific Council for many years, and for accepting a proposal to do the honours of a chairman of the BC Scientific Council for the new term.

After the celebrations, prof. Janeczko invited everyone for a special lecture of Prof. Joachim Hyam Rubinstein (University of Melbourne) entitled "Triangulations And 3-Dimensional Manifolds".



They passed away

Andrzej Grzegorzcyk

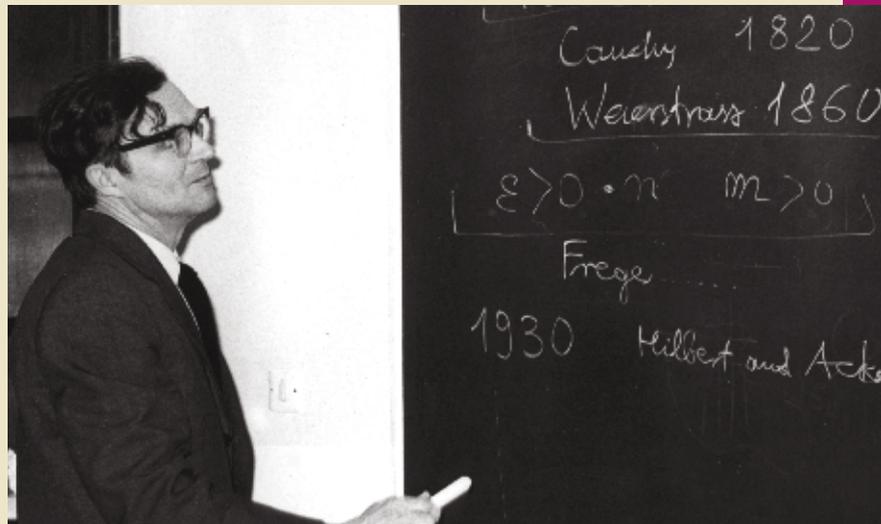
Andrzej Grzegorzcyk (born on August 22, 1922, in Warsaw – passed away on March 30, 2014 in Warsaw).

Professor Grzegorzcyk worked at IMPAN from 1950 to 1974, when he moved to the Institute of Philosophy of the Polish Academy of Sciences where he became the head of the Ethics Group. He was always as deeply interested in ethics and philosophy as he was in mathematics. In years 1970–1974 was the head of the department of Foundations of Mathematics at IMPAN.

His education was rather unusual during World War II: he studied in a chemical college and attended clandestine classes in philosophy and logic. After the war he graduated in philosophy at the Jagiellonian University in Cracow. He obtained his PhD at the University of Warsaw in 1950. His dissertation, *On Topological Spaces in Topologies without Points*, was written under the supervision of Andrzej Mostowski. Then he worked at the Institute of Mathematics of the Polish Academy of Sciences, where he became a docent in 1953 (the paper *Some Classes of Recursive Functions* served as *de facto* Habilitation dissertation), an associate professor in 1961 and a full professor in 1972.

Active in organizing scholarly activities, Grzegorzcyk headed the Logical Semester at the International Mathematical Center (the Banach Center that was then inaugurated) of the Polish Academy of Sciences in 1973; he led a special project, "One Hundred Years of the Lvov-Warsaw School", in 1995–1997; he worked as an assessor in the Executive Committee of the International Union of History and Philosophy of Science, the Division of Logic, Methodology and Philosophy of Science; and from 1999 to 2003 he served as the President of the Committee of Philosophy of the Polish Academy of Sciences. He received honorary doctorates from Clermont Ferrand University and Jagiellonian University in Cracow.

Grzegorzcyk published popular books on logic and computability as well as a widely used textbook: *An*



↑ Andrzej Grzegorzcyk, 25.02.1972

Outline of Mathematical Logic, Fundamental Results and Notions Explained in All Details. They played an important role in logical education in Poland – and were also present abroad, as his popular books, the first presentations of the theory of computability for a general public, were translated into Czech and Russian.

Grzegorzcyk's best known achievement, the so-called Grzegorzcyk's hierarchy, was introduced in 1953. He described and investigated classes of recursive functions obtainable by superposition, restricted recursion and the operation of restricted minimum from some initial functions containing addition, multiplication and, in addition, for each class the appropriate more complicated primitive recursive function. The resulting sub-recursive hierarchy fills the class of primitive recursive functions. Grzegorzcyk also co-authored (with Mostowski and Ryll-Nardzewski) a fundamental paper about second-order arithmetic and the infinitary omega-rule.

During his career, Grzegorzcyk studied computable real numbers, axiomatic geometry based on the

concept of solid, and the theory of Boolean algebras. He showed how to interpret Lesniewski's ontology as Boolean algebra without zero and demonstrated the undecidability of the theory of Boolean algebras with the operation of closure. He investigated intuitionistic logic, and a modal interpretation of Grzegorzczuk's semantics for intuitionism leads to the system known in the literature as S4.Grz, defined as S4 plus the formula $\Box(\Box(A \Rightarrow \Box A) \Rightarrow A) \Rightarrow A$, called Grzegorzczuk's axiom.

Grzegorzczuk has always believed that logic is the morality of speech and thought, something that is also applicable to moral discussions. He was a devout Roman Catholic who was also highly independent and tried to ignore confessional divisions.

Grzegorzczuk has applied his ethical views to the field of conflict resolution, attaching a special importance to methods of non-violence, such as those advocated by Mahatma Gandhi or Martin Luther King. He cooperated with leaders of non-violence movements. He

IN MEMORY OF ANDRZEJ GRZEGORCZYK

When I was a student, and then a young mathematician, for me he was Professor Grzegorzczuk. Then he became just Andrzej – we were on first name terms from quite early on. His close collaborators, Joanna Golińska Pilarek and Konrad Zdanowski, who are the same age as Andrzej's grandchildren, were on first name terms with him as well. The three of them worked together almost to Andrzej's last days. With great admiration, I followed joint work and the collegial relationship between the ninety years old professor and his two younger colleagues in their thirties. Andrzej ran

was also one of the first figures visible in Polish public life who took seriously ecological issues. Before it was widely understood in Poland, he popularized warnings made by the Club of Rome that the resources of our planet are scarce and, therefore, the idea of permanent growth is dangerous.

While his ethical positions and literary works have not been very influential his achievements in logic, such as the Grzegorzczuk hierarchy, the geometry of solids, results about undecidability, results about second-order arithmetic, the S4Grz system and semantics for intuitionistic logic, secure his place in the history of this field. Moreover, his more recent results about the undecidability of the theory of concatenation and, most recently, regarding propositional calculus with the descriptive equivalence connective, provide an important addition to his signal achievements.

Stanisław Krajewski

a seminar, which initially met in the Staszic Palace (the headquarters of the Academy). He took care not only of the program, but also of some more down to earth matters. Two years ago, he turned to me for help in one such matter. Soon after, the seminar participants received a letter, which I quote here to show the atmosphere of the seminar, and also because I am very pleased that my name was mentioned.

Zofia Adamowicz

Piotr Mankiewicz

Professor Piotr Mankiewicz suddenly passed away on February 21 in Warsaw, in the age of 70. He was just on preparations to leave for skiing in Alps.

He studied mathematics at the University of Warsaw, which he finished in 1965. After working for a few years on an assistant position at the University of Warsaw, he moved to IMPAN in 1968 where he worked until now. In 1969 he defended PhD at IMPAN, with the thesis "On continuity in an induced topology of sequentially continuous functionals on subspaces of locally convex linear spaces", under supervision of prof. Wojciech Słowikowski. He got habilitation in 1974, and title of

Professor in 1986, getting the position of full professor at IMPAN soon after. He was granted several state prizes for scientific and organizational achievements, with the last one, in 2009, "Krzyż Kawalerski Orderu Odrodzenia Polski" (Knight's Cross of The Order of Polonia Restituta). He was also distinguished by several scientific prizes, in particular by Polish Mathematical Society Wactaw Sierpiński Prize in 1976.

He was a member of the Functional Analysis Department at IMPAN, and since 2007 Department's head (for a brief description of the Laboratory written by him, see IMPAN Newsletter, issue 1, 2012). He



worked in the functional analysis, mainly geometry of Banach Spaces, sections and projections of symmetric convex bodies in R^n , in particular random. He proved Milman Conjecture. He cooperated with Nicole Tomczak-Jaegermann and they published several joint papers. He coordinated the node at IMPAN of the EU Research Training Network PHD (Phenomena in High Dimensions).

During many years he was Head of the IMPAN Commission for Employment and Scientific Estimation. Till 2012 he was Head of the PhD studies at IMPAN, recently also a member of the Warsaw Center of Mathematics

and Computer Sciences PhD studies Commission. He participated in all entrance exams. His authority calm and wisdom were exceptionally valuable.

He had many hobbies, in particular skiing and sailing, we often listened and talked about his voyages at IMPAN common room.

He will be missed very much. This is the second recent blow, after passing away of Aleksander Pełczyński, in functional analysis at IMPAN. We will miss his mathematics, stories, sense of humor, everything.

Feliks Przytycki

Piotr Mankiewicz jointly with Nicole Tomczak-Jaegermann in "A solution of the finite-dimensional homogeneous Banach space problem", Israel J. Math.(1991) solved a problem raised by V. Milman, by proving the following isomorphic version of a classical isometric homogeneous space problem. There exists a function $f(\delta, K)$, $K > 1$, $0 < \delta < 1$, such that if an n -dimensional Banach space has all its $[\delta n]$ -dimensional subspaces K -isomorphic (in the sense of so called Banach-Mazur distance, i.e. $d(X, Y) = \inf\{\|T\| \times \|T^{-1}\| \mid T : X \rightarrow Y \text{ is an isomorphism}\} \leq K$, then it is itself $f(\delta, K)$ -isomorphic to

the n -dimensional Hilbert space, where $f(\delta, K)$ is $cK^{3/2}$, if $0 < \delta < 2/3$ and cK^2 , if $2/3 < \delta < 1$, and where $c = c(\delta)$ depends on δ only. Earlier J. Bourgain proved this for δ sufficiently small, with rather unpleasant function f .

An isometric problem was first dealt with by Auerbach, Mazur and Ulam. They showed that any 3-dimensional convex symmetric body with all its 2-dimensional central sections affinely equivalent, must be an ellipsoid. Later Gromov extended this for more dimensions. However the case when the dimension is even and sections are of codimension one remains open.

SCIENTIFIC COUNCIL OF THE STEFAN BANACH INTERNATIONAL CENTER FOR THE 2014–2017 TERM

- Prof. Stanisław Janeczko – Chairman of the Stefan Banach International Mathematical Center
- Prof. Zbigniew Błocki (Jagiellonian University, Poland)
- Prof. Pavel Exner (Doppler Institute for Mathematical Physics and Applied Mathematics, Czech Republic)
- Prof. Alice Fialowski (Eötvös Loránd University, Hungary)
- Prof. Grzegorz Karch (University of Wrocław, Poland)
- Prof. Olga Rossi (University of Ostrava, Czech Republic)
- Prof. Marta Sanz Solé (University of Barcelona, Spain) – chairman of the BC Scientific Council
- Prof. Domokos Szász (Budapest University of Technology and Economics, Hungary)
- Prof. Dmitry Treschev (Russian Academy of Sciences, Russia)
- Prof. Jouko Väänänen (University of Helsinki, Finland)
- Prof. Henryk Woźniakowski (University of Warsaw, Poland)

Banach Center Upcoming Events 2014–2015

For more information, please check out: <http://www.impan.pl/BC/Program/2014.html>

	TITLE	DATE	ORGANIZERS	PLACE
1.	11 th International Conference on Ordered Statistical Data	01–06.06.2014	A. Dembińska, A. Goroncy, K. Jasiński, P. Miziuta, T. Rychlik – chair	Będlewo
2.	3 rd Conference on Algebra, Logic and Number Theory ALANT	08–13.06.2014	A. Blaszcok, A. Czogała, P. Gładki, P. Koprowski, K. Kuhlmann, B. Rothkegel, A. Sładek	Będlewo
3.	Integration, Vector Measures and Related Topics VI	15–21.06.2014	M. Balcerzak, M. Cichoń, K. Musiał, G. Plebanek	Będlewo
4.	Constructive Approximation of Functions	29.06–05.07.2014	M. Baran, L. Białas-Cież, M. Kosek, G. Lewicki, A. Skiba, J. Szczepański, P. Ozorka	Będlewo
5.	16 th Workshop: Non-commutative Harmonic Analysis and Probability with Applications	06–12.07.2014	M. Bożejko, W. Ejsmont, A. Krystek, A. Kula, M. Marciniak, W. Młotkowski, R. Lenczewski, R. Satapa, P. Śniady, Ł. Wojakowski, J. Wysoczański,	Będlewo
6.	Aleksander Pełczyński Memorial Conference	13–19.07.2014	T. Figiel, S. Kwapien, K. Oleszkiewicz, M. Wojciechowski, P. Wojtaszczyk	Będlewo
7.	Perspectives of Modern Complex Analysis	20–25.07.2014	W. Bergweiler, D. Drasin, A. Gabrielov, F. Przytycki, D. Schleicher, B. Shapiro	Będlewo
8.	Several Complex Values	28.07–01.08.2014	Z. Błocki, S. Janeczko	Będlewo
9.	Arithmetic Methods in Mathematical Physics and Biology	03–08.08.2014	G. Banaszak, J. Milewski, P. Waliszewski	Będlewo
10.	IX Forum on Partial Differential Equations	31.08–05.09.2014	P. Biler, G. Karch	Będlewo
11.	Workshop in Set Theory	14–17.09.2014	S. Friedman, P. Koszmider, B. Loewe, S. Solecki	Będlewo
12.	5 th Polish Combinatorial Conference	21–27.09.2014	J. Grytczuk, J. Jaworski, P. Micek, P. Naroski, M. Nikodem, K. Rybarczyk-Krzywdzińska, A. Szelecka	Będlewo
13.	EMS School on Stochastic Analysis with applications in biology, finance and physics	06–11.10.2014	P. Imkeller, Ł. Stettner	Będlewo
14.	Dynamics, Topology and Computations	14–20.06.2015	T. Kapela, K. Mischaikow, M. Mrozek, P. Zgliczyński	Będlewo
15.	Topological Quantum Groups – Graduate School	28.06–11.07.2015	U. Franz, A. Skalski, P. Sottan	Będlewo

IMPAN

8 Śniadeckich street
00-656 Warsaw
Poland
tel.: +48 22 5228100
fax: +48 22 6293997
www.impan.pl
im@impan.pl

Stefan Banach International Mathematical Center

8 Śniadeckich street
00-656 Warsaw, Poland
tel.: +48 22 5228232
fax: +48 22 6225750
<http://www.impan.pl/BC/>
banach.center.office@impan.pl

Będlewo Research and Conference Center

Będlewo, 1 Parkowa street
62-060 Stęszew, Poland
tel.: +48 61 8135187
fax: +48 61 8135393
<http://www.impan.pl/EN/Bedlewo/>
bedlewo@impan.pl