Forty five years of cooperation and friendship with Stevan Pilipović

Andrzej Kamiński

Institute of Mathematics, University of Rzeszów

Dedicated to Academician Stevan Pilipović
on His 70th birthday

GF 2020, Gent-Ghent-Gandawa

August 31 - September 4, 2020

For the first time I met Stevan Pilipović during one of the so-called mountain conferences organized in Poland, already since the sixties, by Professor Jan Mikusiński. Therefore, regarding Stevan's remarks in his initial talk, I think that Professor Mikusiński is reasonably considered as an initiator of the series of conferences continued up to now.

The first conference of Stevan in Poland was in Szczyrk in 1975. A half year before the conference I defended my PhD thesis on irregular operations on distributions and Stevan asked me to give him a copy of my thesis (nota bene: the thesis was written in Polish!).

This was the beginning of our cooperation and friendship which lasts already 45 years.

Among the results in my PhD thesis were existence theorems on the convolution: the existence of the convolution of tempered distributions is guaranteed by polynomial compatibility of their supports. Stevan was interested in extending this result for distributions in the space $K\{M_p\}'$ and we started to cooperate on this and other problems.

As a consequence, several publications - common and separate - of ours and of our pupils have appeared. Let me list below some of them:

A. Kamiński, S. Pilipović, On some spaces of distributions, Studia Math. 77 (1984), 489-498.

A. Kamiński, Remarks on $K\{M_p\}'$-spaces, Studia Math. 77 (1984), 499-508.

S. Pilipović, A note on the convolution of functions with compatible carriers, Univ. u Novom Sadu Zb. Rad. Prir.-Mat. Fak. Ser. Mat. 14 (1984), 13-26.

S. Pilipović, On the $\mathcal{A}$-compatibility of supports of distributions of $K'\{M_p\}$-type, Publ. Inst. Math. (Beograd) (N.S.) 38 (1985), 157-163.

S. Pilipović, On the convolution in the space of $K\{M_p\}'$-type, Math. Nachr. 120 (1985), 103-112.

J. Uryga, On compatibility of supports of generalized functions of Gel'fand-Shilov type, Bull. Ac. Pol.: Math. 36 (1988), 143-150.

J. Uryga, On representations of generalized functions of Gel'fand-Shilov type, Bull. Ac. Pol.: Math. 36 (1988), 229-238.

A. Kamiński, J. Uryga, Convolution in $K\{M_p\}'$-spaces, in : Generalized Functions, Convergence Structures and Their Applications, Proc. of the Conf., Dubrovnik 1987, Plenum Press, New York-London 1988, 187-196.

J. Uryga, On tensor product and convolution of generalized functions of Gel'fand-Shilov type, in: Generalized Functions and Convergence (Katowice 1988), World Scientific, Singapore-New Jersey-London-Hong Kong, 251-264.

Common publications on ultradistributions

Already in the eighties, Stevan Pilipović began deep studies of the theory of ultradistributions, in particular of the convolution of ultradistributions. I joined Stevan Pilipović and his pupil, Dušanka Kovačević-Perišić, in their investigations in early nineties. Here you are the list of our common (AK-DK-SP and AK-DP-SP) papers:

AK-DK-SP, The equivalence of various definitions of the convolution of ultradistributions, Trudy Mat. Inst. Steklov 203 (1994), 307-322.

AK-DP-SP, On convolution of ultradistributions, Dissertationes Math. 340 (1995), 79-91.

AK-DP-SP, Existence theorems for convolution of ultradistributions, Dissertationes Math. 340 (1995), 93-114.

AK-DP-SP, On the convolution in the Gel'fand-Shilov spaces, Integral Transforms Spec. Funct. 4 (1996), 83-96.

AK-DP-SP, The convolution and convolutors in Gel'fand-Shilov spaces of distributions, Fract. Calc. Appl. Anal. 2 (1999), 657-668.

AK-DP-SP, Hilbert transform and singular integrals on the spaces of tempered ultradistributions, Banach Center Publications 53 (2000), 139-153.

AK-DP-SP, On various integral transformations of tempered ultradistributions, Demonstratio Math. 33 (2000), 641-655.

AK-DP-SP, On supports and convolution of ultradistributions, in : Proc. of the Conf. on Applications of Mathematics in Engineering and Economics, Sozopol 2001, 42-49.

AK-DP-SP, On the convolution in Gel'fand-Shilov spaces, Part II, Integral Transforms Spec. Funct. 11 (2001), 363-375.

AK-DP-SP, On the convolution of tempered ultradistributions of Beurling type, Integral Transforms Spec. Funct. 15 (2004), 323-329.

Books

It was my privilege to be a co-author of two books, on boundary values in the spaces of ultradistributions and on their convolution, written in common with Richard Carmichael and Stevan Pilipović:

R. D. Carmichael, A. Kamiński, S. Pilipović, Notes on Boundary Values in Ultradistribution Spaces, Lecture Notes Series 49, Seoul National University, Seul 1999, 122 pp.

R. D. Carmichael, A. Kamiński, S. Pilipović, Boundary Values and Convolution in Ultradistribution Spaces, World Scientific, New Jersey - London - Singapore - Beijing - Shanghai - Hong Kong - Taipei - Chennai, 2007, 217 pp.

Let me add that, after the GF 2007 in Będlewo, the following two volumes of the proceedings of the conference were prepared in co-operation of the three editors:

A. Kamiński, M. Oberguggenberger, S. Pilipović (editors), Proc. of the Conf.: Linear and Non-linear Theory of Generalized Functions and its Applications, Będlewo, Poland, 2-8 September 2007 (vol. 1), Integral Transforms Spec. Funct. - Special Issue 20, No. 3-4 (2009), 157-340.

A. Kamiński, M. Oberguggenberger, S. Pilipović (editors), Linear and Non-linear Theory of Generalized Functions and its Applications, Proceedings of the Conference, Będlewo, 2-8 September 2007 (vol. 2), Banach Center Publications.

The first photograph, 1978

After our first meeting with Stevan in Szczyrk there were then many other ones in Poland, Serbia and other countries.

Let me to invite Stevan and all of you to a little walk down my memory lane and to look at the selected photographs made during some of the meetings.

I have no picture from our first common 1975 Szczyrk conference, but I can show a photo made three years later during a small conference, also placed in Szczyrk. I am absent on this black and white photo, because it was made by myself (and developed by my own hands).

I am very proud of it, because it contains images of a few famous mathematicians. It is enough to mention Professors Jan Mikusiński and Czesław Ryll-Nardzewski, called two geniuses by Hugo Steinhaus, surrounded by Professor Piotr Antosik and Dr. Krystyna Skórnik, actual organizers of many GF conferences that were held in Poland. All but two participants of the conference were Polish (from Katowice and Wrocław); the two were from Serbia (SP) and Russia (VZ). We can see on the picture:

- standing from the right:

Professors Czesław Ryll-Nardzewski, Piotr Antosik, Jan Mikusiński, Krystyna Skórnik Stevan Pilipović, Władysław Kierat, Zygmunt Tyc, Victor Zharinov and Zbigniew Lipecki;

and - crouching down from the right:

Cezary Ferens, Czesław Kliś and Anzelm Iwanik.

With a great regret I have to say that the four mathematicians standing to the right of Stevan as well as the two outflanking Czesław Kliś in a squat have already passed away.

There were numerous conferences on generalized functions (and on convergence structures) organized in the seventies and eighties in Poland and in other countries but I have not too many interesting photographs to show, so let us move on to the nineties.

In 1993 and in 1995, the two conferences entitled "Different Aspects of Differentiability" were organized in Warsaw under the direction of Professor Danuta Przeworska-Rolewicz and Dr. Krystyna Skórnik.

On the picture from 1993, we can see three persons standing in front of the building of the International Banach Center (Warsaw, Mokotowska street).

These are two mathematicians, S. Pilipović and A. Kamiński, with the wife, Vala, of the third mathematician V. Zharinov, who was just making this picture (he was shown on the first photo from the 1978 conference).

On the picture from 1995, Stevan Pilipović is delivering his lecture at the Institute of Mathematics of the Polish Academy of Sciences (Warsaw, Śniadeckich street).

I would like to present now a series of five pictures from the international conference organized in Novi Sad in 1996, called shortly GF 1996 or GF '96.

The first photo shows all participants in front of the building of Math. Dept. of Novi Sad University. There are many famous mathematicians from all the world seen on the picture. Let me only indicate Academician Vladimirov standing near Stevan Pilipović.

The second picture presents Stevan during his talk and the third the audience during another talk. In the first raw of the audience, one can recognize Professors Vladimirov and Komatsu and Stevan conversating with Professor Biagoni.

On the fourth photo, we can see Stevan surrounded by beautiful ladies being his pupils and collaborators and.

On the fifth one, the three co-authors of the two books published three and eleven years later (R. Carmichael, A. Kamiński, S. Pilipović), accompanied by Dr. Eida (Tokyo University), during the conference excursion to Fruška Gora.

The next photograph shows another team of co-authors (of several papers listed at the beginning):

A. Kamiński, D. Kovačević-Perišić and S. Pilipović,

standing on a hill with a nice view of the Atlantic Ocean during an excursion in the frame of another conference.

It was the the conference GF 2000 at Pointe-á-Pitre in French Guadeloupe, a very nice Caribbean island belonging to the archipelago of Lesser Antilles.

The conference was organized by Professor Jean André Marti together with his team.

In 2002, an international conference in Novi Sad was organized. It was the minisymposium on "Wavelets, Integral Transforms and Applications", in short: WITA 2002.

Let me present one photograph, which shows all participants of the conference standing in front of the building of the Mathematics Faculty of the Novi Sad University.

In the first raw, one can see Stevan Pilipović as well as my wife Svetlana with me. It was our first common participation in a long series of conferences organized in Novi Sad.

The conference MASSEE 2003, Borovetz

Below we can see six pictures from the international congress MASSEE (Mathematical Society of SouthEstern Europe) held in 2003 in Borovets, with the section on fractional calculus and generalized functions, organized by Professor Virginia Kiryakova.

On the first two photos, we see Professor Stevan Pilipović delivering his lecture and conversing with a group of participants and the organizer of the section, Professor Kiryakova.

The next four pictures were made during a very nice excursion to Musala (the highest peak of Balkan penninsula, 2925 m), organized by a small group of ambitious mathematicians who love climbing. The trip was arranged in opposition to the excursion for the participants offered by the organizers of the congress, which was proposed on an essentially lower level.

On the first of the four photos, we can see Svetlana, accompanied by two academicians: Professor Ivan Dimovski, a member of Bulgarian Academy of Sciences and her PhD supervisor (her PhD Thesis was defended three years before) and Professor Stevan Pilipović, our very good friend and a member of Serbian Academy of Sciences soon.

The first photograph was evidently made at the beginning of the excursion. The next three ones show further stages of the escapade.

From all the faces seen on the pictures one can clearly conclude that the excursion was very successful.

The conference GF 2004 in Novi Sad

The photografs collected below are snapshots from the conference on Generalized Functions organized in Novi Sad in 2004.

The Conference was dedicated to Academician Bogoljub Stanković on the occasion of the jubilee of His 80th birthday.

On the first picture the hero of the anniversary, Professor Stanković, is greeting us with his cheery smile.

The two next photos show official speakers of the ceremony in action or waiting their turn, like Professors Jean Francois Colombeau and Stevan Pilipović.

On the fourth picture we have a group shot of all participants of the conference.

On the next photographs Stevan P. and Arpad T. are accompanied by Svetlana and myself.

The two next pictures show Stevan Pilipović with Bulgarian mathematicians: discussing with Professor Ivan Dimovski on the first of them and with Professors Peter Popivanov, Stepan Tersian and Virginia Kiryakova on the second one.

The last photograph exhibits a group of participants conversating and smiling at the table with bottles of mineral water.

The conference GF '07 in Będlewo

The next set of photographs presents selected moments from the Conference GF' 07, organized in 2007 in Poland, by our team from Rzeszów with the cooperation of Grzegoerz Łysik from Warsaw. The conference took place at the conference center (of the Institute of Mathematics of the PAS) in Będlewo near Poznań.

The first picture shows all participants in front of a nice palace, the location of GF' 07.

On the second one, Stevan is delivering his talk ; the logo of the GF' 07 is seen on the screen.

On the next photo the Novi Sad mathematicians: Arpad T., Stevan P., Ljubica O., Mirjana S., Sanja K., Djurdjica T. and Dušan R. are surrounding Professor Hikosaburo Komatsu.

An interesting math discussion between Stevan P. and Michael K. with the use of Stevan's hand (and an extra finger !) is seen on the fourth photo.

On the fifth picture Stevan Pilipović and Michael Grosser with Ljubica Oparnica are seen in one of exclusive palace rooms.

The sixth picture reveals a moment of deep reverie of two great mathematicians, Todor Gramchev and Stevan Pilipović.

The next photo presents a group of participants of the conference, during the conference excursion to Poznań, in front of the historical cathedral housing the tombs of the first Polish rulers ; standing from the right: T. Gramchev, AK, S. Pilipović, A. Takači, H. Komatsu and S.-Y. Chung (not showing us his face).

The last two photos show nice whiles spending between and after scientific sessions.

Let us look at several pictures taken from the 12ve Serbian Mathematical Congress held in Novi Sad in 2008.

The first four ones show activities of Stevan during the opening ceremony and during one of the sessions of the conference.

The fifth photo presents Professor Stevan Pilipović together with his two young Serbian colleagues and the sixth one with a little older Polish friend, during certain breaks in the conference sessions.

The next picture shows Stevan together with Mrs. Oberguggenberger and the Kamińskis during an excursion to Fruška Gora.

On the last two pictures one can see nice coca cola and beer sessions.

The conference GF 2010 organized in Novi Sad was dedicated to the 65th birthday of Stevan.

I can show two pictures from this conference, courtesy of Diana Stoeva who made and send us these photographs.

On the first photograph, the celebrant is receiving a painting as a jubilee gift.

On the second one, the birthday person is surrounded by four participants of the conference: Irina Melnikova (Ekaterynburg), Dimitris Scarpalézos (Paris) and the Kamińskis (Rzeszów).

The conference GF 2011 in Martinique

The ten photos below show various moments of the conference GF 2011 held in Martinique.

On the first two photos, we can see Stevan Pilipović and Jasson Vindas, the authors of the presentation seen on the screen.

The third one shows every day trips of a group of participants from their place of living
   - for the scientific sessions to the University of Martinique (in the mornings)
   - and back (in the evenings).

The fourth photo:
   - time spent in a bus was also nice.

The fifth photo:
   - it was nice to meet friends in a restaurant with a beautiful view on the ocean.

The sixth photo:
   - the palm trees were very impressive.

The seventh and eight photos:
   - the organizers guaranteed the participants both a hot climate and very warm mutual relations between the participants.

The nineth photo:
   - the banquet in the company of Professors Marti and Pilipović were very nice indeed.

The tenth photo:
   - but the atmosphere was absolutely magnificent when the captain Jean André Marti invited a group of participants for a supper to his boat.

The next two pictures were made during the conference entitled
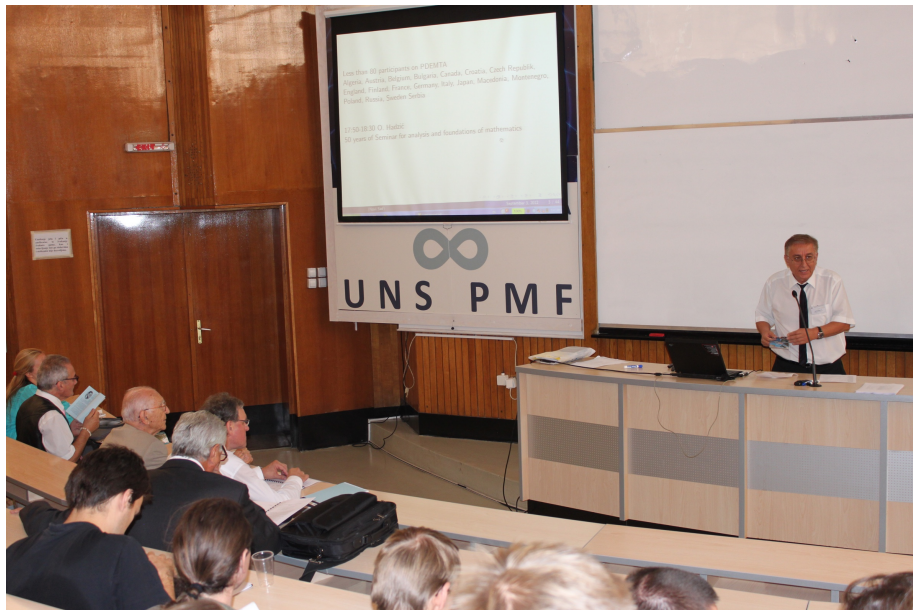
<div align="center">

50 Years of the Seminar for Analysis

and Foundations of Mathematics

led by Academician Bogoljub Stanković.

</div>

The first photograph shows Stevan Pilipović's talk during this conference.

The second one is made in the hotel "Fontana", a very nice place to dwell during various mathematical events in Novi Sad.

Let us look at a few pictures from the ISAAC Congress 2013 in Kraków.

The first photo:

- In front of the famous medieval Kraków Sukiennice (from XIII c.).

The second and third photos:

- In the medieval Collegium Maius of the Jagiellonian University (founded in 1364).

The fourth photo:

- A general view of a group of participants of the GF section of the Congress during the celebration supper in a nice Kraków restaurant.

The next four photos:

- Various impressions from the supper.

The next three photos are connected with the conference Complex Analysis and Applications organized in Sofia in 2013.

On the first picture, we see the three participants from different countries and universities: Stevan Pilipović (University of Novi Sad), Jasson Vindas (University of Ghent) and Dennis Nemzer (State University of California), standing on the background of the statue of the Goddess Sofia, the patroness of the city Sofia.

The second photo shows the conference talk of Stevan Pilipović.

On the third picture, one can see a conference discussion between Professors Pilipović, Popivanov and Vindas.

Now it is time for photographs from the conference GF 2014 organized by Professor James Vickers in Southampton in 2014.

The first three pictures concern Stevan's talk during the conference:

- the author's presentation,

- the attention focused by the audience,

- a very good humor of Professors Pilipović and Vickers at the blackboard after the talk.

A good humor can also be seen on the next photographs:

- during a conversation after the talk,

- in the time of meeting friends on the University campus,

- in the course of the visit in a historical museum ship in Portsmouth (in the frame of a Conference excursion), with Stevan, Joachim and myself embracing tenderly a gun that remembers various historic moments,

- during an exquisite dinner in the same ship.

Now let us look at a few photographs from the ISAAC Congress 2015 in Macau.

On the first two pictures we see Stevan Pilipović delivering his talks during the Congress: an official speach and a mathematical presentation.

The third photo shows the audience listening and discussing during one of the sessions in the GF section of the Congress.

The four next pictures show various mathematical discussions as well as less formal conversations.

The three next photographs are made during the conference GF 2016 in Dubrovnik.

The first two ones present a group of participants, in slightly different configurations, in front of the conference building.

The third one reveals pleasant moments spent in a restaurant, with Stevan Pilipović, Grzegorz Łysik and Todor Todorov in the foreground.
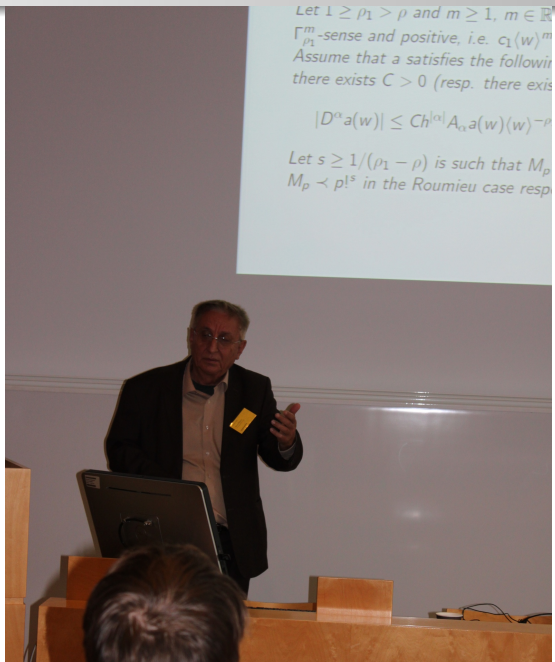
From the ISAAC Congress held in 2017 in Växjö I am showing two photographs with Stevan Pilipović.

On the first photo Stevan is presenting his Congress talk.

On the second picture Stevan Pilipović as a chairman of a session is announcing Sanja Atanasova as a speaker.

The conference GF 2018 in Novi Sad

The set of ten photos below derives from the Conference GF 2018 in Novi Sad.

The Conference was dedicated to Professor Michael Oberguggenberger on his 65th birthday.

The first picture shows the main hero and the main organizer of the Conference.

On the second and the third photos we can see Stevan Pilipović as the chairman of one of the scientific sessions.

The next two photos present snapshots from the hot discussions between Stevan Pilipović and Marko Nedjelkov. On the second one we can see Professor Olga Hadjić sitting in the first raw.

The sixth photograph shows a happy moment of joy of Professor Pilipović and his four pupils.

On the seventh one Stevan and Arpad are standing in a raw with myself.

The next two pictures are made during the Conference dinners.

Everybody should agree with the sense of the last picture of the series: the main organizer of the Conference deserved for this gift.

Finally, I would like to show three shutters from the last ISAAC Congress organized in 2019 in a Portugal city of Aveiro near the Atlantic coast.

The pictures show a few scenes observed during the coffee break of one of the sessions of the Congress.

On the first picture those who are conversing with Stevan show us, naturally, only their backs.

On the second photo, Professors Stevan Pilipović and Michael Kunzinger, the chief of the International Association for Generalized Functions, are already seen in all their glory.

The last picture serves as a proof that making photographs can induce cheerfulness among those who are photographed by surprize.

Our walk through elapsed time has come to an end.

I would like to thank Stevan for so many important and pleasant moments experienced together and to all who agreed to go around in common with us.

But my special thanks go to my wife, Svetlana, who is making the journey through life together with me already for twenty years.

I am also very much grateful to her for her enormous help in selecting and preparing so rich collection of photographs which made it possible to accomplish our common travel in time.

By the way, I have not counted the photos during preparing the whole material only after completing it. The result is unbelievable but true: the number of all photographs collected accidentally to the above presentation is ... the round 100 !

Therefore I have no excuse but have to sing for you, Stevan, the known Polish birthday celebration song:

STO LAT, STO LAT NIECH ŻYJE STEVAN NAM !

100 YEARS, 100 YEARS LET STEVAN LIVE WITH US !

Thank you very much !