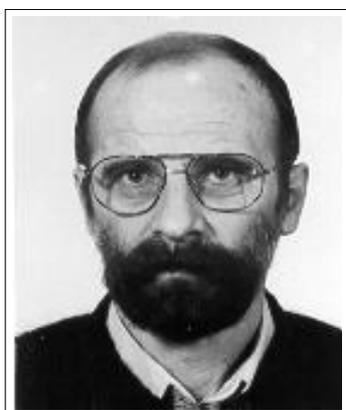# Memory of Stanisław Gnot

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Stanisław Gnot (1946 – 2002)

Stanisław Gnot was born in Przemyśl, 10th October 1946. He received a M. Sc. degree at the University of Wrocław at the Faculty of Mathematics, Physics and Chemistry in 1969. Next, in 1974 he obtained a Ph. D. at the Mathematical Institute of Polish Academy of Sciences in Wrocław (doctoral – publications [3], [5]). The following obtainment of the doctorate led to his immediate employment as a professor assistant in the Institute of Immunology and Experimental Therapy of Polish Academy of Sciences, where he worked incessantly for 10 years, in a department with an enough singular name: Computational Center and Collection of Microorganisms. He was a main consultant there in the range of mathematical and statistical methods during innumerable number of doctorates and postdoctoral lecturing qualifications of the workers of the Institute.

In 1984 he received a postdoctoral degree in the mathematical sciences (Dr. hab.) at the University of Wrocław at the Faculty of Mathematics, Physics and Chemistry. The specific atmosphere of the last years of work at the Institute caused that he left the medical environment and soon took up a position in the Department of Mathematics at the Agricultural University as associate professor. In 1991 he obtained the academic title of Professor by motion of Faculty Council of Mathematics and Physics of Adam Mickiewicz University in Poznań.

In 1991–1994 he fulfilled the position of the head of the Department of Mathematics and the head of the Institution of Statistics at the Agricultural University. In years 1990–1994 he was also employed at the Institute

of Mathematics at the Technical University of Opole. During the period of VI-th Cadence (1988–1990) he was acting as a president of the Commission on Mathematical Statistics at the Committee of Mathematical Science of Polish Academy of Sciences. In autumn 1994 Stanisław Gnot took up a difficult challenge in a new academic and scientific environment at the Pedagogical University of Zielona Góra, where, until 1997, he was the head of the Department of Probabilistic and Mathematical Statistic of the Mathematical Institute, and in 1997–1999 in this Institute he fulfilled the function of deputy-manager on sciences. In 1996–1999 with a great engagement he carried out the duties of the Vice-Rector for Research and International Cooperation. Since 1999 he started work at the Technical University of Zielona Góra at the Institute of Mathematics on the position of full professor. In September 2001 as a result of joining Technical University and Pedagogical University together, the University of Zielona Góra was established, with a serious Institute of Mathematics manned with almost 100 workers, which unfortunately turned out to be the last scientific marina of professor Stanisław Gnot. He died at daybreak on Tuesday, 9th April 2002, after a long and serious illness, which slowly thwarted his creative strength. But, in spite of suffering almost to the last days of life he talked and thought about different problems, about his co-workers and many unfinished papers.

Stanisław Gnot was an experienced specialist in the field of mathematical statistics. He published over 60 papers in renowned journals of international range, mainly on the estimation and hypotheses testing of parameters determining the probabilistic structure of linear models and on the experimental theory. He was the supervisor of 3 doctoral papers (near the completion was the forth doctorate – it lacked only just a few weeks). Professor Stanisław Gnot was the reviewer of 22 doctoral papers, of 3 papers qualifying for assistant-professorship and he was a reviewer for a professor title. He published the original monograph entitled "Estimation of variance components in linear models" ([62] in Polish) which is a splendid compendium of the optimal point estimation of variance components in the mixed and random linear models corresponding to different experimental designs. It is very helpful both for the young mathematicians specializing in the theory of statistical decisions and for the experienced statisticians interested in the mentioned problems. With a scope for a wide practicality, it can be readily exercised by specialists in other non-mathematical disciplines. Moreover, he is the co-author of a popular and extraordinarily original handbook of statistics ([63]) being a guide during the performance of the statistical analysis of an experimental data by using the statistical package (three editions). Thus, as one of the first statisticians at the Polish "scene" he showed as

one can teach the difficult notions of the mathematical statistics in a modern and practical way. He gave several foreign scientific practices in the following countries: Finland (University of Tampere), Germany (Univesitt Dortmund), Great Britain (University of London), Portugal (University of Lisboa), Slovakia (Slovak Academy of Sciences); he took part in many international conferences in Poland as well as abroad, most often as a visitor lecturer. It is worth stressing that Staszek Gnot, at different stages of his professional career, was an organizer or a co-organizer of many scientific local and international conferences connected with various topics of mathematical statistics, among others are:

- "Conference on Mathematical Statistics", Kozubnik 1986, Łagów 1998,

- "Statistical Methods of Identifications – Theory and Applications", Sobótka 1987,1988, 1989 (seminars with participation of foreign guests which effects were editions of the original reviewed materials – in English),

- "Mathematical Statistics", Wisła 1992, 1994, 1995 (local conferences),

- "Mathematical Confrontations", Zielona Góra, 1996, 1997, 1998 (local conferences).

The investigative problems being a main subject of interests and considerations of professor Stanisław Gnot referred to:

- the statistical inference in population genetics and microbiology – papers: [4], [6], [11]–[13], [16], [19], [20], [22], [23], [26], [29], [36], [42],

- the optimal estimation and testing of hypotheses in linear models with heterogeneous structures of covariance matrices – papers: [7]–[10], [14], [17], [18], [21], [24], [25], [27], [28], [30]–[33], [35], [39], [40], [44]–[55], [57]–[61],

- the experimental theory and particularly the theory of block designs – papers: [1]–[3], [5], [56],

- the methods of identifications – papers: [15], [34], [35], [38].

To the most important scientific achievements of Stanisław Gnot belong the following:

- constructing a class of admissible tests for testing of hypothesis of Hardy-Weinberg equilibrium in models of population genetics – papers: [20], [23] and previous paper [16],

- giving some generalizations of theory concerning a characterization of Bayesian estimators and admissible, in respect to the quadratic function of loss in linear models – papers: [9], [18], [24], [25], [28], [31], [44],

- constructing a class of tests and giving their properties for testing of hypotheses for variance components, based on invariant admissible estimators of the parameters – papers: [40], [46], [48],

- giving a full characterization of nonnegative and admissible estimators of variance components in mixed models with two variance components – papers: [27], [28], [50] and previous papers: [8], [9], [24], [25],

- giving the necessary and sufficient conditions for which exist uniformly best invariant estimators of variance components in two-way classification model for an arbitrary distribution of probability of vector of observations – paper [53] and previous papers: [30]–[33],

- constructing the nonnegative estimator with minimal bias of the function of mean quadratic risk of linear estimator in normal model and applying the estimator to selection of variables in regression analysis – papers: [49], [51], [52], [60] and previous papers: [33], [44],

- giving the necessary and sufficient conditions of admissibility intra- and inter-block estimators of variance components in mixed linear model with two-way classification – paper [56],

- giving an explicit form of maximum likelihood estimators of variance components for some class of mixed linear models without restrictions and in a class of nonnegative estimators – papers: [55], [57].

The scientific and didactic achievements of Staszek Gnot are tangible proofs of his scientific talent and ability to excel organizing work in different research teams. He was the manager and main performer of several research projects – grants financed by Committee of Scientific Researches (KBN), excluding other financed by different ministerial departments. The last grant KBN realized in the period: 2000.02.01 – 2002.01.30, managed by professor Gnot concerned an application of linear algebra, convex analysis and algorithms and numerical procedures to linear and robust inference in linear models. The effects of this grant were 12 papers published and papers which have been sent to press in such journals as: Linear Algebra and its Applications, Statistics, J. Multivariate Analysis. The final report from the realization of the research project was being written by him hammer and tongs, he did not know till the end that a malignant cancer kept wasting the bones of his toil-worn arms. I remember perfectly the afternoon of 23rd November 2001, when in a small seminar room at the Department of Mathematics at the Agriculture University in a close group he presented some general ideas of our joint paper (with A. Urbańska-Motyka). Unfortunately, the paper ([64]) which dealt with the REML estimators of variance components in

mixed normal models was already the last paper and it was also the last lecture of professor Stanislaw Gnot – how one can admire him for that now, how much strength he had to find inside to perform the last notations?

One can say paraphrasing the aphorism of Horace "all's well that ends well" that "end of work is laurel wreath or funeral" – surely Staszek would get many more laurel wreathes for the effects of his scientific work. In years 1986–1994 he got 9 awards of Rector of the Agriculture University in Wrocław, in years 1994–1998 he received 3 awards of Rector of the Pedagogical University in Zielona Góra. Unfortunately, before the proper time he has been called by God he received a lot of funeral wreathes from relatives, friends and acquaintances.

Professor Stanisław Gnot was not only an outstanding scientist, but he was also a splendid thinker. Among many disciplines which he keenly was interested in there were the following: philosophy, ethics, theology and aphoristic. To this the proof may give numerous discussions also carried on during different small talk meetings on the occasions of conferences. Additionally, it has been expressed by prof. Hilmar Drygas from the University of Kassel in the sent condolence letter:

" (…) The date of the 9th April now will also remain in my memory as the day of decease of our friend and colleague Stanisław Gnot. We almost met somewhere every year since 1975. He was in my house and I was a guest in his apartment in 2000 before the Gronow workshop. I enjoyed this time very much. We had many discussions, not only on mathematics. It surprised me that he talked about God several times. Did he foresee some facts of the future? (…)"
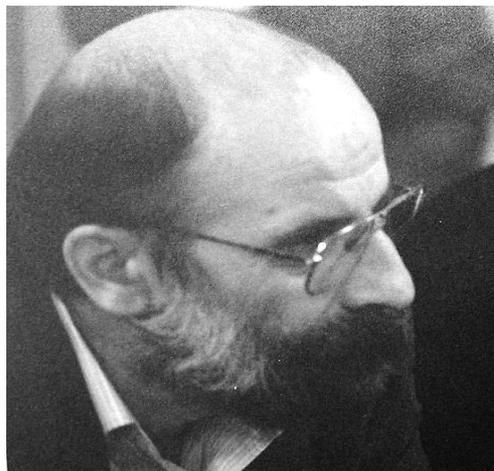
Contemplative face of Staszek during of some conference meeting

Staszek Gnot was also a great enthusiast of sport (football – he had a referee's qualifications, tennis, table tennis, etc.); he was a lover of nature (he worshiped forest rambles joined with the mushroom picking and sitting at the lake and fishing). It was also mentioned in the condolence letter, which has been written by his Japanese colleague Sanpei Kageyama from Hiroshima University:

" (...) That is, a bad news of the death of Stanislaw Gnot on 9th April. I know him well. In fact, we enjoyed some academic works together and published a joint paper in JSPI. We also enjoyed the forest walking to collect and eat mushroom. I cannot believe his sudden passing away. (...)"

Here Staszek is cutting off a shapely boletus (Boletus edulis)

Staszek had a great and surely well earned esteem not only in Poland, but also abroad, which is proved by the number of letters of condolence from different foreign colleagues. Those who knew him or who were with him even just for a moment felt a lot of joy and respected him sincerely. Everybody had a high opinion of Staszek for his unusual humor, frankness and unheard-of kindness, for his mind on the one hand very rational and on the other a subtle and deep reflective.

Professor Stanisław Gnot was an outstanding research worker and a wise academic teacher he was simply a man with charisma, everywhere you could have met him.

First letter with condolence came from Louisiana State University:

"All friends, Please accept my deepest condolences for the loss of Staszek! I believe that all who knew him mourn one of the most wonderful souls, one of the most modest top mathematicians and statisticians in our field. I am very proud that I am among those lucky enough to have known him".

Julia Volaufova (and Lynn Roy LaMotte)

And next: from Slovakia:

"Let me express my deepest sorrow... for Staszek – wonderful man. We will remember him for ever".

Viktor and Veronika Wiktovsky (Slovak Academy Sciences)

From Hungary, Bohemia, Portugal, Germany, Japan, England and from Poland:

" On behalf of the whole community of the Polish Statistical Society we send you personally the expressions of heart-felt sorrow because of the death of an outstanding statistician, many years' member of the Polish Statistical Society – Prof. Dr. Stanisław Gnot. Simultaneously, I express a deep mournfulness that the magnificent scientist and the man of a great heart left us."

President of PSS Prof. Dr. Czesław Domański

"With a great sorrow and grief we receive the message of the death of Prof. Dr. Stanisław Gnot – outstanding mathematician, the active and creative member of the community of the Polish statisticians. It is a great pity that never again we will stay with him in Wisła...."

Friends from Systems Research Institute of PAS and Technical University of Warsaw

And finally the letter with most fair condolence words from the magnificent scientist – mathematician and biometrist, known as well in Poland as abroad – Prof. Dr. Tadeusz Caliński from Poznań:

"I am deeply shocked to hear the news of the death of my dear Colleague – professor Stanisław Gnot and I join the sorrow with all whom he left. His death is the great loss for science and in particular for Polish mathematics. He was a tireless champion of the applications of mathematical and statistical methods and he achieved a great success in the field. He was capable of collaborating with the investigators representing different schools with success and he gained the gratitude and liking everywhere. All of us will miss him greatly. He will remain in our memory as an Outstanding Scientist and a Dear Colleague. I kindly ask for giving the deepest sympathy and grievance to the head and workers of the Department of Mathematics of Agriculture University in Wrocław and also to the Dear Family of the Late Prof. St. Gnot. Together with my Colleagues from Poznań, for whom Stanisław Gnot was the paragon of a scientist and a noble man, I feel sorry at His loss. Let him remain in Eternity.

Yours sincerely – Tadeusz Caliński

These are the several fragments of speeches over the grave of Staszek:

(...) My first meeting with Staszek took place during one scientific session of Polish Mathematical Society when I was a student of the third year of the applications of mathematics at the University of Wrocław I heard his splendid speech on the scope of the mathematical modelling in population genetics. Then I felt some grand fluids, later there followed years of magnificent collaboration and finally years of wonderful friendship.

(...) Stasiu was the man on penetrating glance and His wise eyes, always open onto people and world, complete of warmth and kindness, they showed a way of recognition of truth and finding out of world and authentic people and proper assessment of phenomena. (...)

Stasiu – You were an authentic priest of science – reliable and honest and concrete work was Your everyday prayer-this prayer You taught us, not through blank words but through facts and concrete actions. In the words of German poet J.W. Goethe was included in a great measure Your life motto:

"For the most sure mean of cementing the friendly relations I consider mutual inquiring about own papers because what brings people closer is what they do more than that what they think".

You taught us truth and publicness, in the professional work you can' t stand superficiality and humbug. (...)

Staszek had an unusual and original sense of humor and he himself was the author of extremely relevant and witty expressions. (...)

Dear Stasiu – You did not take the attribute of omniscience away from God. You did not pretend to be alpha and omega in all-mathematical disciplines; you dazzled us with your rare modesty and humility. You reached scientific criticism, only there, where reached Your knowledge. This raised Your greatness still more; this determined Your honesty and authentic charisma of a Scientist and a Teacher. You fixed the paths of the professional ethics for everybody, in particular for those who don't have humility. For all this we thank You from the depth of our hearts and consciences and we pay highest homage to You in this mournful day.

(From farewell over the grave of Staszek, delivered on Thursday, April 11th 2002, by Andrzej Michalski)

Staszek...
When I think about Him I realize that in the whole of my adult life there are incessant returns and meetings with Him. I see just now that he was one of the most important people I knew.

We met for the first time, I don' t remember, either at common lectures or in the student's hostel. He was my older colleague; we studied the major on specialty of mathematical applications.

From the later talks it appeared that we made the choice knowingly. We knew that the mathematics discloses its beauty when it is applied wisely, when it explains something. But also the practical issues which mathematician meets, gives a start to many interesting problems, strictly theoretical ones, the solution that requires sometimes a great mastery. Such a master was Staszek. (...)

After graduations we met seldom. He worked at the Institute of Immunology, he was at doctoral studies. In my mind stuck the meeting at the beginning of memorable 1982 (remainder of author: martial law). I had to pass on him a request for help in a difficult and risky matter. We went to the riverbank of Odra with fishing rods as an alibi. I got to know then that Staszek was a reliable, friendly and brave man.

I remember him like this. The third of our meeting was a meeting in the Department of Mathematics of Agriculture University of Wrocław. By caprice of fate more or less in the same time we started our collaboration there. Just after the receiving a postdoctoral degree Staszek became the undeniable scientific leader. After seven years he became the head of the Department. I remember that time as very creative for our team. There were establishing the very attractive cooperation with colleagues from another Departments of our University, splendid conferences of Identifications of Images. Among the participants there were: geodesists, specialists of photogrammetry, computer scientists, theoretical and practical statisticians, from Poland and abroad, colleagues from the Department of Mathematics in different specialties. Staszek tried, so we keenly participated in scientific life. We went to different conferences with his unquestionable recommendation. We organized countrywide conferences in Wisła. Wrocław was present everywhere, wherever it was possible to show oneself, the place of Staszek at any conference was a center of formal and informal meetings with friendly statisticians from many countries. All of us remember the unforgettable atmosphere and discussions from Wisła, Błażejewko and Kozubnik. As head of the Department he avoided any formalisms, everyone called him Staszek, only some Stasiu.

He thought highly of others and he came up very seriously to matters of assessment of the workers. And so he brought an objective system of assessments in the Department, he turned the local institution into the Small Council of Department – he sought its advice in each question.

Staszek left Wrocław and on the turn of 1994 he went to Zielona Góra, where he formed a group of excellent statisticians. That was a new challenge for him. He became the vice-rector of his new University, he had new students, he had many lectures. I had a great pleasure to lecture in statistics with him for scientific workers at the Pedagogical University in Zielona Góra.

(...) He very cordially invited us for the Mathematical Confrontation organized by his new University – and it was like before. I had a particular recollection from the last common conference in Gronów. The picture on which he is with professor Włodzimierz Krysicki is worth each photographic exhibition, it has a real moving significance.

They both passed away from us in the last time

The last, tragic period Staszek's life started for us characteristically. In autumn 2000 Staszek proposed common meeting of closest colleagues in his flat in Zielona Góra – because of the defense of doctoral thesis of one colleague from the Department. He wanted to go on this defense, and that we should turn up together. But absolutely we had to be with him at least for one day. He called us many times to assure whether we appear for sure. That was our last common feast and a joyful daylong talk. Did he know something? Did he foresee? After one month since our meeting in January he was found in hospital in Wrocław.

This day started the last march to the place where we are today. Staszek was hopeful. He said that he would fight. He fought bravely, he went through serious operations. He still wrote papers, he accounted for grants. We still went out to drink a small bier with juice several times. We planned a joint book. I have one chapter that was written by him. I did not know that this chapter would be the last produced by Staszek.

(From farewell over the grave of Staszek, delivered on Thursday, 11th April 2002, by Andrzej Dąbrowski)

The late Professor Dr. Stanisław Gnot was buried on Thursday, 11th April 2002 at the St. Family's Cemetery in Wrocław in Smętna Street.

The list of the papers of Stanisław Gnot

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[6] Valuation of characteristic of water purity. The use of numerical methods for qualitative and quantitative evaluation of the degree of pollution. Acta Microbiologica Polonica 25, 1976, 261– 267. (co-authors: T. Szulga, M. Ostrowski).

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[8] Best linear plus quadratic estimation of parameters in mixed linear models. Zastosowania Matematyki XV, 1977, 455–462 (co-authors: W. Klonecki, R. Zmyślony).

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[12] Efficiency of the determinant methods of estimating gene frequencies in three allelic models. Arch. Immunolog. Therapy Exper. 6, 1978, 165–167 (co- authors: H. Matej, T. Szulga).

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[23] Testing approximate validity of Hardy-Weinberg law in population genetics. Proceedings, 2nd Pannonian Symposium on Mathematical Statistics, 1982, 35–46 (co-authors: T. Bednarski, T. Ledwina).

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[40] Linear and quadratic estimation from inter- and intra-block sources of information. Statistics 22, 1991, 17–32 (co-author A. Michalski).

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