

Obituary for Prof. Dr. Hab. Wojciech Pachelski. Two years death anniversary

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Fig. 1. Prof. Wojciech Pachelski

Professor Wojciech Pachelski was born in April 1939 in Warsaw. He graduated the Warsaw Geodesic Secondary School and then the Faculty of Geodesy and Cartography of the Warsaw University of Technology in 1961. He worked as an assistant at the Institute of Geodesy and Cartography in 1961–1962, then (1962–1972) as an assistant professor at the Computing Center of the Polish Academy of Sciences in Warsaw.

He defended his doctoral dissertation *Some Solutions for Processing Observational and Orbital Numerical Data of Artificial Earth Satellites* (Figure 2) at the Faculty of Geodesy and Cartography of the Warsaw University of Technology in 1966. Professor Tadeusz Trajdos, an outstanding Polish mathematician, a longtime employee of our University, was his thesis supervisor.

Wojciech Pachelski, Ph.D. was employed at the Institute of Mathematical Machines in Warsaw (as an assistant professor – Head of Department) in 1972–1977. His work subjects included: applications of digital machines to the processing of satellite surveying and space experiments data; development of the sequential alignment method and its application to the experimental satellite triangulation network.

In the following years (1977–2008) he worked as an assistant professor and professor (from 1994) at the Space Research Center of the Polish Academy of Sciences, where he continued research in the above fields. During this period, Professor Wojciech Pachelski's textbooks for learning programming in Fortran – known all over Poland – were published. From these books, older MUT employees (including the author of this biography) learned Fortran IV programming for ODRA 1300 machines and Fortran 77.



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Wojciech Pachelski, Ph.D. was on a contract at the German Geodesic Research Institute (DGFI) in Munich in 1978–1979. He dealt with satellite altimetry and issues of adjustment decomposition in the least squares. These last issues became the subject of his post-doctoral thesis (Figure 3). On the Decomposition in Least Squares (with Examples of its Application in Satellite Geodesy) which he defended at the Faculty of Geodesy and Cartography of the Warsaw University of Technology in 1986.

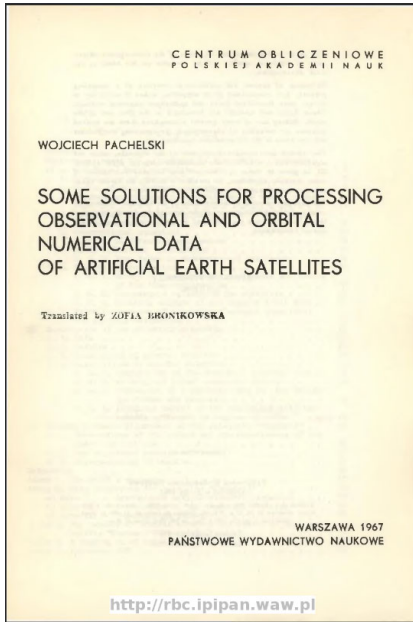


Fig. 2. The doctoral dissertation of Wojciech Pachelski, M.Sc.

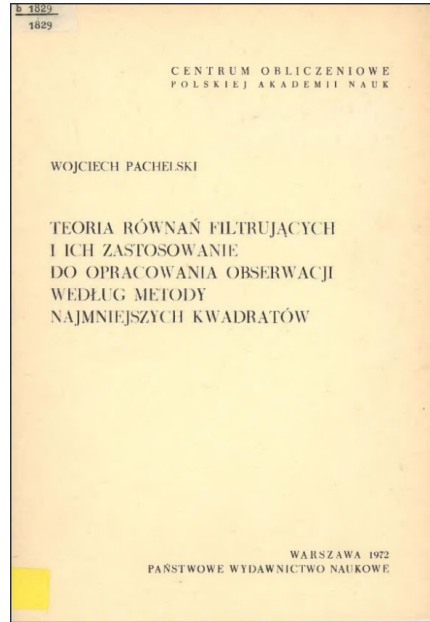


Fig. 3. Wojciech Pachelski's post-doctoral thesis (<http://rbc.ipipan.waw.pl>)

He participated in the III International Summer School of Geodesy on optimization and design of geodesic networks in Erica, Sicily in 1984.

Having achieved the post-doctoral academic degree, he took part in a scientific internship at the University of Stuttgart for a few months. Professor Erik Grafarend – already then, a world-famous surveyor, mathematician and geophysicist, was his scientific supervisor. The research topics of the internship included:

- 1) study of the impact of satellites orbital errors in GPS networks and analysis of algorithms for calculating the Earth's field of gravity;
- 2) application of the Kalman filter to non-differential processing of GPS phase measurements;
- 3) methodology and programs for non-differential processing of GPS phase measurements;
- 4) methodology and programs for determining instantaneous positions and speed of moving objects based on GPS phase measurements;
- 5) determination of barycentric coordinates and using them to determine the position of points.

Professor Wojciech Pachelski again worked at the Institute of Geodesy and Cartography in Warsaw as professor in 1992–2001 where he conducted work in the field of normalization of geographic information issues in cooperation with the European Committee for Standardization. These works were continued as part of the Polish Committee for Standardization and the Main Office of Geodesy and Cartography.

He received the title of professor of technical sciences in 1993.

He managed four research projects of the Ministry of Science and Higher Education at the Space Research Center and the Institute of Geodesy and Cartography in 1993–2001. He also managed a ministerial project regarding information models within the Global Geodetic Observing System in 2009–2012. Here he involved brilliant young employees of the Faculty, among others Karolina Szafranek, Ph.D.

Professor Wojciech Pachelski worked at the Faculty of Geodesy and Spatial Management at the University of Warmia and Mazury in Olsztyn in 2002–2009 and at the Faculty of Geodesy and Cartography of the Warsaw University of Technology (2004–2007). As part of the employment, he introduced a standardized methodology of teaching geographic information modeling to study programs at both the universities.

He was an adviser to the president of the Main Office of Geodesy and Cartography – the Surveyor General of Poland in 2008–2014.

He was employed at the Faculty of Civil Engineering and Geodesy of the Military University of Technology as professor since October 1, 2009.

Professor Wojciech Pachelski was the supervisor of five successful doctoral dissertations (Agnieszka Zwirowicz, Artur Plichta, Agnieszka Chojka, Marek Piotrowski and Joanna Kuczyńska) and he managed many engineer's and master's theses.

At the Military University of Technology, he continued research on the theory and modeling of geographical information in the field of higher and satellite geodesy and adjustment calculus.

He authored over 100 publications, and the most important include:

- Some Problems Concerning Processing GPS Measurement Data. *Geodesy and Cartography*, vol. XL, vol. 2, pp. 141–162, 1991.
- Sequential Adjustment of Undifferenced GPS Phases. In: *Global Positioning Systems in Geosciences*, Proc. Intern. Workshop, Techn. Univ. of Crete, Chania, Greece, 1992, pp. 214–226, Publ. Techn. Univ. of Crete, 1993.
- *Satellite Methods*, a chapter in: *Precision leveling (collective work)*, PPWK, Warsaw 1993.
- *Structural Programming: Fortran 77 for IBM-PCs*, WNT, Warsaw 1993.
- *Possible Uses of Natural (Barycentric) Coordinates for Positioning*. Techn. Rep. Well. 2, Geodetic Institute, University of Stuttgart, 1994.
- *Application of Moebius Barycentric Coordinates (Natural Coordinates) for Geodesic Positioning*. In: *Geodetic Theory Today*, pp. 9–18, Springer, 1994 (co-author E.W. Grafarend).
- *Barycentric Coordinates: An Introduction to Geodetic Applications*. Semin. “*Mathematische Methoden der Geodäsie*”, Mathematisches Forschungsinstitut Oberwolfach, Germany, 1-7 October 1995.

- GPS Phases: Single Epoch Ambiguity and Slip Resolution. In: *GPS Trends in Precise Terrestrial, Airborne, and Spaceborne Applications*, Symp. Well. 115, Boulder, CO, 1995, pp. 295–299, Springer, 1996.
- *Geoinformation Direct Location Description*. Geoinformatica Polonica, Cracow 2003.
- *Modeling of Geographical Information According to Standardized Methodology*, chapter 1 in: *Conceptual Modeling in the Design and Implementation of Geoinformation Systems*. Institute of Geodesy and Cartography; 2009, pp. 7–28.
- *Application Scheme*, chapter 4 in: as above, 2009, pp. 77–96.
- *Modeling of Geographical Information: Basics*, chapter 1 in: *Spatial Data Modeling*, *Annals of Geomatics*; 2010, volume VIII, issue 4 (40), pp. 13–26.

He was a member of the Scientific Council of the Space Research Center of the Polish Academy of Sciences in 1977–2004; Committee of Geodesy of the Polish Academy of Sciences, including the chairman of the Geoinformatics Section (1987–2006).

He was an honorary member of:

- the Geoinformatics Commission of the Polish Academy of Skills,
- Polish Association for Spatial Information,
- Technical Committee 297 of the Polish Committee for Geographical Information Standardization.

He was the editor-in-chief of the “Artificial Satellites – Journal of Planetary Geodesy” in 1995–2006.



Fig. 4. Professor Wojciech Pachelski with the distinction in the office of the Rector-Commander of the Military University of Technology on April 24, 2014 (Photo by courtesy of the Military University of Technology). During the meeting, General Professor Zygmunt Mierczyk – the Rector-Commander – wished the Jubilee many years of fruitful work in full health, prosperity in personal life and fulfillment of all dreams and plans

The employment of Professor Wojciech Pachelski at the Faculty of Civil Engineering and Geodesy of the Military University of Technology strengthened the faculty's cooperation with the Main Office of Geodesy and Cartography, the Polish Association for Spatial Information and other organizations and associations that count in the world of geodesists and cartographers.

Professor Wojciech Pachelski of the Faculty of Civil Engineering and Geodesy was a guest of honor of General Professor Zygmunt Mierczyk – the Rector-Commander of the Military University of Technology on April 24, 2014 (Figure 4). The reason for the meeting was the guest's 75th jubilee. The meeting was also attended by Professor Mariusz Figurski – the Vice Rector for Development and Professor Ireneusz Winnicki – the Dean of the Faculty of Civil Engineering and Geodesy.

Over the years of employment at the University, he was asked by authorized basic organizational units of AGH University of Science and Technology, the University of Warmia and Mazury, the Warsaw University of Technology to prepare reviews and opinions in promotion procedures in the old and new doctoral procedure mode. He chaired post-doctoral committees. He reviewed the doctoral dissertations of many young scientists of the Faculty of Civil Engineering and Geodesy. This signifies his great authority in our environment.

Professor Wojciech Pachelski as an excellent teacher, scholar and educator was the supervisor of research projects at the doctoral degree studies. He was awarded the medal of Merit for the Faculty of Civil Engineering and Geodesy of the Military University of Technology (Figure 5).



Fig. 5. Medal of Merit for the Faculty of Civil Engineering and Geodesy of the Military University of Technology (Photo by courtesy of the Faculty) awarded to Professor Pachelski upon the Dean's motion (the Dean's decision No. 142 / WIG / 2016 of 21 June 2016). (Medal design: Alicja Karwowska and Jacek Szczyglowski)

He died on July 19, 2018 at the age of 79.