# PROF. DR. HAB. FRANCISZEK GRABSKI, TITULAR PROFESSOR



Prof. dr hab. Franciszek Grabski from 1969 up to now is a research and teaching staff member at the Department of Mathematics and Physics of Naval Academy. Conducts lectures and classes in mathematics, statistics, calculus of probability, etc. on all levels of university studies, both in Polish and English languages. The research and teaching fellow at the Institute of Mathematics of University of Gdańsk in years 1986–1996. Professor of Postgraduate Studies at the Institute of Mathematics of University of Gdańsk in years 1998–2012. Research and teaching professor at the Department of Mathematics (Faculty of Navigation) at Gdynia Maritime University in years

1999–2003. Teaching Professor at the Department of Cybernetics of Military University of Technology, Warsaw in years 2013–2014.

Known in Poland as a precursor of the application of semi-Markov processes to modelling, analysis and optimization of exploitation processes of technical equipment. Numerous scientific publications (books, articles, papers, scripts, etc.) present results of research and investigations on applications of the theory of stochastic processes in reliability, safety and operation of objects, including ships.

## Scientific titles and degrees

- Professor title in *technical sciences*, 2003, nominated by the President of Poland.
- DSc (habilitation) in mathematics, automatics and robotics, machine construction and operation, 1984, from Jarosław Dąbrowski Military University of Technology, Warszawa, Poland. Habilitation thesis: Semi-Markov theory of operation processes of technical systems (in Polish)
- PhD in mathematics, automatics and robotics, machine construction and operation, 1976, from Jarosław Dąbrowski Military University of Technology, Warszawa, Poland. Dissertation: Stochastic model of ship operation process (in Polish), supervisor prof. Stanisław Piasecki.



• MSc in *mathematics*, 1969, from Faculty of Mathematics, Physics and Chemistry, Higher School of Pedagogy in Gdańsk, Poland. Master's thesis: *External differential forms (in Polish)*, supervisor prof. Kazimierz Gęba.

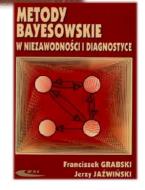
#### Scientific achievements

- A total of 133 scientific publications, including 6 books two in English (in the prestigious *Elsevier Publishing House*) and 4 university scripts, 130 articles, of which 68 in English, including 34 published in high-scoring foreign journals and monographs.
- The publishings are widely cited in Poland and abroad (according to *Google Scholar* data alone, the total number of citations of some works is 645).
- Participation in more than 90 international and foreign scientific conferences.
- Dozens of unpublished but documented papers performed as part of scientific research work conducted in various research teams (usually head of research teams).
- More than 100 reviews in habilitation and doctoral dissertations, books and articles.
- Promoter and consultant of master's and doctoral theses and reviewer and consultant of postdoctoral theses.

### Books, articles, monographies

- Grabski F., Kołowrocki K. Asymptotic reliability of multistate system with semi-Markov states of components. *Proceeding of the European Conference on Safety and Reliability ESREL'99*, Monachium. *Safety and Reliability*, A.A. Balkema, Rotterdam, Brookfield 1999, 317–322.
- Grabski F., Jaźwiński J. *Bayesin methods in reliability and diagnostic (in Polish)* Monograph. Wydawnictwa Komunikacji i Łączności, Warszawa 2001.
- Grabski F. Semi-Markov models of reliability and operation process (in Polish). Monograph. Systems Research Institute, Polish Academy of Sciences, Warszawa 2002.
- Grabski F. The reliability of an object with semi-Markov failure rate. *Applied Mathematics and Computation*. 135(1), 2003, 1–16.
- Grabski F., Jaźwiński J. *Some problems of modelling transportation systems (in Polish)*. Monograph. ITE. Biblioteka Problemów Eksploatacji. Warszawa-Radom 2003.
- Grabski F. *Applications of semi-Markov processes in safety and reliability analysis.* Monograph Gdańsk 2009.





POLSKA AKADEMIA NAUK

SEMI-MARKOWSKIE MODELE NIEZAWODNOŚCI I EKSPLOATACJ

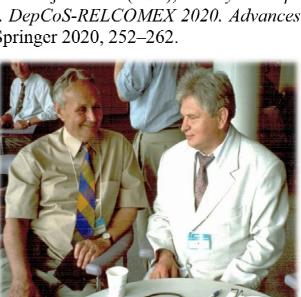
Jerzy JAZWINSKI Franciszek GRABSKI

NIEKTÓRE PROBLEMY ODELOWANIA SYSTEMÓ

BIBLIOTEKA PROBLENOW EKSPLOATACJI



- Grabski F., Jaźwiński J. Functions with Random Arguments in Safety, Reliability and Logistics (in Polish). Monograph. Wydawnictwa Komunikacji i Łączności, Warszawa 2009.
- Grabski F. Semi-Markov failure rate processes. *Applied Mathematics and Computation* 217, Elsevier 2011, 9956–9965.
- Grabski F. Integral functionals of semi-Markov processes in reliability problems. In: W. Zamojski et al. (Eds.), *New Results in Dependability and Computer Systems. DepCoS-REL-COMEX 2013. Advanced in Inteligent System and Computing* 224. Springer 2013, 205–213.
- Grabski F. Semi-Markov Processes: Applications in Systems Reliability and Maintenance. Monograph. Amsterdam, Boston, Heidelberg, London, New York, Oxford, Paris, San Diego, San Francisco, Sydney, Tokyo, Elsevier 2015.
- Grabski F. Nonhomogenous Poisson process application to modelling accidents number at Baltic Sea waters and ports. *Journal of Polish Safety and Reliability Association*, 8(1) 2017, 39–47.
- Grabski F. *Random models of accidents at Baltic port and sea water areas*. Journal of Polish Safety and Reliability Association, 10(1) 2019, 59–70.
- Grabski F. Non-homogeneous four state semi-Markov reliability model of operation process. In: W. Zamojski et al. (Eds.), Theory and Applications of Dependable Computer Systems. DepCoS-RELCOMEX 2020. Advances in Intelligent Systems and Computing 1173, Springer 2020, 252–262.
- Grabski F., Rutkowska M. Maximization problem of three tasks operation process subject to constraint of availability in semi-Markov reliability model. In: K. Kołowrocki et al. (Eds.), Safety and Reliability of Systems and Processes, Summer Safety and Reliability Seminar 2021. Gdynia Maritime University, Gdynia, 2021, 129–138.
- Grabski F. Maximization problem subject to constraint of availability in semi-Markov model of operation. *Applied Modeling Techniques and Data Analysis 1: Computational Data Analysis Methods and Tools*, chapter 9, Wiley Online Library 2021, 175–186.



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**SEMI-MARKOV** 

FRANCISZEK GRABSKI

PROCESSES:
APPLICATIONS IN SYSTEM
RELIABILITY AND MAINTENANCE

Prof. Franciszek Grabski and Prof. Jerzy Jaźwiński, Japan, 1999.

#### Other

- President of the Gdansk Branch of the Polish Mathematical Society (two terms).
- Member of the Environmental Team of the Section of Fundamentals of Exploitation of the Committee of Machine Building, Polish Academy of Sciences, Gdańsk.
- Member of the Audit Committee of the Polish Society for Safety and Reliability.
- Honorary Member of PTBiN for contribution to the development of safety and reliability science.
- Member of the Council of the Faculty of Mechanical and Electrical Engineering of Naval Academy, Member of the Senate of Naval Academy, Council of the Institute of Mathematics, University of Gdańsk, Council of the Faculty of Mathematics

Prof. Krzysztof Kolowrocki
Polakie Towarzystwo Begpieczeństwe i Niezewodności
Al Jana Powah i 13 81-346 Gógnia
Wydział Nawigacjiny Uniwersystu Mornkiego w Gdyni
Ind.: -48-88-888278. c-mail: pozrzegpłanajł wskiesześcjalnajł wskież https/oprłanajł

AKT NADANIA TYTUŁU
HONOROWEGO CZŁONKA

POLSKIEGO TOWARZYSTWA
BEZPIECZEŃSTWA I NIEZAWODNOŚCI
Panu
prof. dr hab. Franciszkowi Grabskiemu

w dowód szacunku i uznania za wieloletnią działalność naukorog i szczegółne zastugi oraz wkład w rozwój nauki o bezpieczeństwie i niezawodności.

Ciechocinek, 11 września 2021 roku

matics and Physics of the University of Gdańsk, Council of the Faculty of Navigation of the Maritime University in Gdynia.

- For his teaching and scientific achievements he has been repeatedly awarded with rector's prizes. In 1995 and 2015 he was awarded the title of *Leading Academic Teacher of the Academy of Military Sciences* of the first degree. In 2011 he received the first degree award for scientific achievements and many rector's prizes of the second and third degree. Moreover, he also received ministerial awards: of the Minister of National Defence for lifetime achievement (2010) and for teaching achievements (2014). In 1991 he was awarded the Golden Cross of Merit and in 1999 he was awarded the Medal of the National Education Commission.
- With the rank of Commander of the Polish Army, he represented the Polish Navy at the Special Course at the NATO Defence College in Rome in October 1991 for NATO members.
- He served in the army from 1971 to 2004.
- He never belonged to the Polish United Workers' Party.