

Curriculum Vitae [§]

Personal Details

Name: **Tomasz Kapitaniak**
DOB: 27 April 1959
Nationality: Polish
Present appointment: Professor of Nonlinear Dynamics, Head of Division
Address: Technical University of Lodz, Division of Dynamics,
ul. Stefanowskiego 1/15, 90-924 Lodz, Poland
Telephone/Fax: +48(0)42-6312231 / +4842-6312203
E-mail/http: tomaszka@p.lodz.pl / www.kdm.p.lodz.pl/T_Kapitaniak.html

Summary:

Higher Education and Qualifications

- Faculty of Mechanical Engineering, Technical University of Lodz, M.Sc. in mechanics, 1982.
- Faculty of Mathematics, Physics and Chemistry, University of Lodz, M.Sc. in applied mathematics, 1985
- Faculty of Mechanical Engineering, Technical University of Lodz, Ph.D. in mechanics, 1985.
- Faculty of Mechanical Engineering, Technical University of Lodz, D.Sc. in mechanics, 1988.
- Professor of technical science, title given by the President of Poland, 1995.

Awards and Distinctions

1989 Awarded the British Council Fellowship, The British Council, Warsaw.
1989 Award of the Minister of Higher Education and Technology.
1990 Awarded the King Abdul Aziz Award Fellowship, King Abdul Aziz City for Science and Technology, Riyadh, Saudi Arabia.
1993 Awarded the Silver Cross of Merit, The President of Poland.
1995 Award of the Minister of National Education.
1997 Awarded the Fulbright Fellowship, The Fulbright Commission, Warsaw.
2000 Awarded the Golden Cross of Merit, The President of Poland.
2001 Awarded the Degree of Honorary Professor, Scientific Council of Saratov State University, Saratov.
2001 Honorary Professor, College of Engineering, University of Aberdeen, Aberdeen (Scotland) to 2004.
2006 Award of the Minister of Science and Higher Education.

Memberships of Professional Bodies

- American Physical Society (1998).
- European Mechanics Society (1996).
- London Mathematical Society (1991).
- Society for Industrial and Applied Mathematics (1998).
- Polish Society of Theoretical and Applied Mechanics (1994).
- GAMM (1989).
- American Mathematical Society (1984-98).
- Elected Member of the Committee of Mechanics of the Polish Academy of Science, (2003-2009).
- Elected Member of the Committee of Theory of Mechanisms and Machines of the Polish Academy of Science (2003-2009).

Employment History and Work Experience

1983-89 Lecturer in mechanics, Faculty of Mechanical Engineering, Technical University of Lodz
1989-92 Associate Professor of mechanics, Faculty of Mechanical Engineering, Technical University of Lodz
1989-91 Visiting Research Professor, Department of Applied Mathematical Studies, University of Leeds
Since 1992 Professor of mechanics, Faculty of Mechanical Engineering, Technical University of Lodz
Since 1992 Head of the Division of Dynamics, Technical University of Lodz
1993, 1994 Visiting Professor, Department of Mechanics, Royal Institute of Technology, Stockholm
1996-99 Vice-dean of the Faculty of Mechanical Engineering
1997 Visiting Research Professor, Department of Applied Mathematical Studies, University of Leeds

[§] Last update on 31/Oct/10

1998 Visiting Research Professor, Institute for Plasma Research, University of Maryland, College Park

Research Interests

Mechanical oscillations, nonlinear systems, stability, bifurcations and chaos, controlling and synchronization of chaos, stochastic dynamics, mathematical modeling, ordinary differential equations, vibro-impact systems, mechanical randomizers, applications of nonlinear dynamics.

International Collaborations

- Professor R.L. Viana, Departamento de Física, Universidade Federal do Paraná, Curitiba, Paraná, Brazil
- Professor Leon O. Chua, Department of Electrical Engineering and Computer Science, University of California, Berkeley, USA
- Professor Marian Wiercigroch, Department of Engineering, University of Aberdeen, Scotland, UK
- Professor John Brindley, Department of Applied Mathematical Studies, University of Leeds, Leeds, UK
- Professor Ying-Cheng Lai, Department of Electrical Engineering, Arizona State University, USA
- Professor Celso Grebogi, Department of Physics, University Aberdeen, Scotland, UK
- Professor Vadim Anishchenko, Saratov State University, Saratov, Russia
- Professor Yuri Maistrenko, Institute of Mathematics, Academy of Science of Ukraine, Ukraine
- Professor Stefano Lenci, Department of Architecture, Building and Structures, Polytechnic University of Marche, Italy
- Professor Yuri Miklin, Department of Applied Mathematics, Kharkov Polytechnic University, Ukraine
- Dr Ekaterina Pavlovskaia, School of Engineering, University of Aberdeen, UK
- Professor Giuseppe Rega, Department of Structural Engineering and Geotechnical Engineering, University of Rome 'La Sapienza', Italy
- Dr Mattias Wolfrum, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany
- Dr Serhiy Yanchuk, Institute of Mathematics, Faculty of Mathematics and Natural Sciences II, Humboldt University of Berlin, Berlin, Germany
- Dr Svitlana Popovich, Mathematical Faculty, University of Cologne, Germany

Teaching and Administrative Duties

Undergraduate Teaching

Mechanical Vibration, (45 hours course, 15 lectures, 15 tutorials, 15 lab experiments)

Bifurcation and Chaos (30 hours course, lectures + tutorials)

Dynamics and Control (120 hours course given in English, 60 lectures, 60 tutorials and laboratory experiments)

Postgraduate/Postdoctoral Supervision

- 1993 Jerzy Wojewoda, Division of Control and Dynamics, University of Strathclyde - 1993 (co-adviser R. Barron)
- 1994 Anton van Wyk, Department of Nonlinear Dynamics, Rand Afrikaans University - 1994 (co-adviser W.-H. Steeb)
- 1995 Barbara Blazejczyk-Okolewska, Faculty of Mechanical Engineering, Technical University of Lodz
- 1996 Andrzej Stefanski, Faculty of Mechanical Engineering, Technical University of Lodz
- 1997 Andrzej Kozlowski, Faculty of Mechanical Engineering, Technical University of Lodz
- 1997 Przemyslaw Szuminski, Faculty of Mechanical Engineering, Technical University of Lodz

Administrative Duties

Since 1992, Head of the Division of Dynamics, Technical University of Lodz

1996-99, Vice-dean of the Faculty of Mechanical Engineering

Research Grants

1. The Control of Dynamical Behavior of Mechanical Systema with Discontinuity, Ministry of Science and Higher education, Poland, 2007-10, PLN: 450000 (co-investigator with K. Czolczynski as principal investigator).
2. Dynamic Complexity in Systems, Deutscher Akademischer Austauschdienst, Programm des Projektbezogenen Personenaustauschs (PPP) mit Project Based Personnel Exchange Programme with Polen – DAAD/KBN, 2007-09, EUR: 8120, Supporting grant of Ministry of Science and Higher education, Poland, 2006-08, PLN: 132500.
3. Multi-scale Modeling of Dry Friction, The Royal Society of London, 2007-09, £12,000 (a joint project with the University of Aberdeen). Supporting grant of Ministry of Science and Higher education, Poland, PLN: 50000.
4. Dynamics and synchronization of nonlinear mechanical oscillators suspended on elastic beam, Ministry of Science and Higher education, Poland, 2006-09, PLN: 280800 (principal investigator, with K. Czolczynski, A. Stefanski and P. Perlikowskias coinvestigators).
5. Impacts in mechanical systems with heavy spring elements, Ministry of Science and Higher education, Poland, 200608, PLN: 129298 (co-investigator with B. Blazejczyk-Okolewska as principal investigator).
6. Analysis of the synchronization phenomena in the array of chaotic oscillators, Ministry of Science, Poland, 2005-2007, PLN: 157300 (co-investigator with A. Stefanski as principal investigator).
7. Method of analysis of modes of oscillations of industrial robots manipulator elements with experimental verification, KBN, Poland, 2003-06, PLN: 157.000 (co-investigator, with dr P. Szumiński as principal investigator).
8. Theoretical and experimental analysis of dry friction in chaotic systems, 2003-05, KBN, Poland, PLN 138.800 (co-investigator, with dr J. Wojewoda as principal investigator).
9. Oscillations of two impacting oscillators, KBN, Poland, 2003-05, 2003-05, PLN 135.550 (principal investigator, with B. Błażejczyk-Okolewska as co-investigator).
10. Numerical and experimental analysis of the process of synchronization of chaotic dynamical systems, KBN, Poland, 2002-04, PLN 171.920.11. Estimation of the largest Lyapunov exponent in non-smooth systems on base of synchronization of systems, KBN, Poland, 2000-02, PLN 64.480 (principal investigator, with A. Stefański as co-investigator).
12. Riddled basins of attractions in multidimensional dynamical systems, KBN, Poland, 1998-2000, PLN 52.000.
13. Analysis of motion of mechanical systems with impacts, KBN, Poland, 1997-2000, PLN 77.805 (principal investigator, with B. Błażejczyk-Okolewska as co-investigator).
14. Nonlinear dynamics of manipulators with stiff elements, KBN, Poland, 1996-97, PLN 25.515.
15. Chaotic dynamics of systems with many degrees of freedom, KBN, Poland, 1996-97, PLN 39.400.
16. Chaos in multi-dimensional systems – hyperchaos, EPSRC, UK, £10.000 (co-investigator, with J. Brindley from Leeds University as principal investigator).
17. Method of elimination of self-exciting vibrations in systems rotor-gas bearing, KBN, Poland, 1994-96, PLN 49.000 (coinvestigator, with K. Czolczyński as principal investigator).
18. Investigation of stochastic resonance in chaotic systems, KBN, Poland, 1993-95, PLN 16.000.
19. Control of chaotic motion in nonlinear systems, KBN, Poland, 1992-93, PLN 11.000.
- 20. Controlling chaos: applications in geophysics, The British Council, UK and KBN, Poland, joint grant, 1992, £1200.**

International Academic Visitors

20-22/09/2009	Prof. Gunter Radons	Technical University of Chemnitz, Chemnitz, Germany
13-20/09/2009	Dr Mattias Wolfrum	Wieierstas Intritute of Mathematics and Statistics, Berlin, Germany
13-20/09/2009	Dr Serhiy Yanchuk	Humboldt University of Berlin, Germany
10-15/04/2003	Dr Katia Pavlovskaya	University of Aberdeen, Scotland, UK
	Prof Marian Wiercigroch	
2-4/11/2002	Prof Sergio Lopez	University Federal do Parana, Brasil
	Prof Ricardo Viana	
21-30/03/2002	Prof Marian Wiercigroch	University of Aberdeen, Scotland, UK
10-30/06/2002	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
10-30/06/2002	Dr Sergiej Yanchuk	Mathematics Institute, Science Academy of Ukraine
16-23/09/2001	Prof Marian Wiercigroch	University of Aberdeen, Scotland, UK
17-24/09/2001	Dr Elena Panchuk	Mathematics Institute, Science Academy of Ukraine
2-28/06/2001	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
1-20/12/2000	Dr Sergiej Yanchuk	Mathematics Institute, Science Academy of Ukraine
1-30/11/2000	Dr Sergiej Yanchuk	Mathematics Institute, Science Academy of Ukraine
11-12/06/2000	Prof Dante Barone	Univ.Federal do Rio Grande do Sul, Brazil
5-18/06/2000	Dr Sergiej Yanchuk	Mathematics Institute, Science Academy of Ukraine
25-30/06/1999	Prof Swietłana Popovich	Mathematics Institute, Science Academy of Ukraine
24-30/06/1999	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
11-24/06/1999	Prof Swietłana Popovich	Mathematics Institute, Science Academy of Ukraine
7-23/06/1999	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine

1-10/12/1998	Prof John Brindley	University of Leeds, UK
17-19/11.1998	Prof John Brindley	University of Leeds, UK
21/02-4/03/1998	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
9/02-28/02/1998	Dr Aleksander Silchenko	Physics Department Saratov State University, Russia
10/01-8/02/1998	Dr Alexey Pavlov	Physics Department Saratov State University, Russia
10/01-8/02/1998	Dr Aleksander Silchenko	Physics Department Saratov State University, Russia
3-17/12/1997	Prof John Brindley	University of Leeds, UK
30/10-14/11/1997	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
16-30.09.1997	Dr Vladimir Astakov	Physics Department Saratov State University, Russia
27/01-26/02.1997	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
1-21/10.1996	Dr Vladimir Astahov	Physics Department Saratov State University, Russia
1-21/10/1996	Prof Galina Strelkowa	Physics Department Saratov State University, Russia
20/06-10/07/1996	Prof Gabor Szollos	Thermodynamics Institute, Czech Academy of Science
12-25/05/1996	Prof Sergiej Gonchenko	Matematics Department, University of Nizhny Novogorod, Russia
6/04-5/05/1996	Dr Vladimir Astakov	Physics Department, Saratov State University, Russia
3/03-2/04/1996	Prof Yuri Maistrenko	Mathematics Institute, Science Academy of Ukraine
24/03-4/04/1995	Prof John Brindley	University of Leeds, UK

Professional Activities

Conferences organized

- EUROMECH COLLOQUIUM Noise and Chaos in Dynamical Systems, Spala (Poland), 1993, co-organizer
- International Conference on Applied Chaotic Systems, Inowlodz (Poland), 1996, co-organizer

Reviews

- Reviewer of research proposals for Engineering and Physical Science Research Council (UK) and State Committee for Scientific Research (Poland)
- Reviewer for Physical Review Letters, Physical Review E., Physica D, Physics Letters A, Chaos, Solitons and Fractals, International Journal of Bifurcation and Chaos, International Journal of Nonlinear Mechanics, Journal of Sound and Vibration, Nonlinear Dynamics, Journal of Solids and Structures, IEEE Transactions on Circuits and Systems.

Editorial Boards

- Associate editor of Chaos, Solitons and Fractals, since 1990
- Member of editorial board of International Journal of Bifurcation and Chaos
- Member of editorial board of Machine Dynamics Problems
- Editor in chief of Mechanics and Mechanical Engineering

Shards

- (1) Citations: over 2000 citations in the period 1989-2009
- (2) Work Reviewed in Scientific Periodicals by Others
 - Mathematical Reviews, issue 96c:34070 (1996)
 - UK Nonlinear News, 18 (1999), www.amsta.leeds.ac.uk/Applied/news.dir/issue7.dir/art/books.html
 - Chaos, Solitons and Fractals, 11, 641 (2000)
 - UK Nonlinear News, 19 (2000), www.amsta.leeds.ac.uk/Applied/news.dir/issue7.dir/art/books.htm
 - E-Streams, 3(5), www.e-streams.com/es0305/es0305_820.htm
 - Applied Mechanics Review, 53, B12 (2000)

Invited Presentations And Seminars (Selected)

1. IUTAM Symposium on Dynamics and Control of Nonlinear Systems with Uncertainty, Nanjing, China, 18-22 September 2006
2. Instituto Nacionales de Pesquisas Espacios, San Jose Dos Campos, Brazil, May 2006
3. 5th Brazilian Conference on Dynamics, Control and Their Applications, Guaratingueta, Brazil, 23-26 May 2006

4. 6th Crimean School on Nonlinear Dynamics, Chaos, and Applications, Melas, Ukraina, 15-26 May 2006
5. Workshop on Synchronization and Higher-Dimensional Chaos, Berlin, Germany, November 2004
6. XXXII Summer School of Russian Academy of Sciences on Advanced Problems in Mechanics, St. Petersburg, Russia 24 June-1 July 2004 (plenary lecture)
7. Inaguration of the series of publication on Arabic Origin of Cryptology, Riyadh, Kingdom of Saudi Arabia, 19 October 2003 (plenary lecture)
8. Transfinite Mathematics and Computer Art, Zentrum fur Kunst und Medientechnologie, Karlsruhe, Germany 11 October 2003 (plenary lecture)
9. Institute of Fundamental Technical Research, Warsaw, Poland 3 December 2003
10. IUTAM Symposium on Chaotic Dynamics of Systems and Processes in Mechanics, Rome, Italy, 9-13 June 2003
11. Synchronization of Chaotic and Stochastic Oscillations, Saratov, Russia, 22-28 September 2002 (plenary lecture)
12. XXXII Summer School of Russian Academy of Sciences on Advanced Problems in Mechanics, St. Petersburg, Russia, 2002 (plenary lecture)
13. Mathematics and Education in Mathematics, Borovets, Bulgaria, 8-11 April 2001
14. Institute of Space research, Bulgarian Academy of Sciences, Sofia, Bulgaria
15. Discrete Dynamical Systems in Natute and Social Science, Odense, Denmark, May 2000 (plenary lecture)
16. University of Aberdeen, Department of Engineering, March 2000
17. IUTAM Symposium on Recent Developments in Nonlinear Oscillations of Mechanical Systems, Hanoi, Vietnam, 2-5 March 1999
18. Discrete Dynamical Systems in Natute and Social Science, Beer Sheva, Israel, October 1998 (plenary lecture)
19. Impact and Friction of Solids, Structures and Intelligent Machines, Ottawa, Canada 27-30 June 1998
20. Duke University, Department of Engineering, Durham, August 1998
21. University of Michigan, Department of Engineering, East Lansing, August 1998
22. University of Kansas, Department of Physics, Lawrence, USA, August 1998
23. University of Maryland, Institute of Plasma Research, College Park, April 1998
24. International Conference on Applied and Industrial Mathematics, Cairo, Egypt, December 1997 {plenary lecture)
25. IUTAM Symposium on Interaction between Dynamics and Control in Advanced Mechanical Systems, Eindhoven, The Netherlands, 21-26 April 1996
26. Physics and Dynamics between Chaos, Order and Noise, Berlin, Germany, 26-30 August 1996
27. Chaos-The Interplay Between Stochastic and Deterministic Behaviour, Karpacz, Poland, 13-24 February 1995
28. Nonlinear Phenomena in Ocean Dynamics, Los Alamos, USA, 15-19 May 1995
29. Chaotic, Fractal, and Nonlinear Signal Processing, Mystic, USA 10-14 Jly 1995
30. Complex Systems in Computation Physics, Buenos Aires, Argentina, 18-22 October 1993
31. Structure Formation in Continuous Dynamical Systems, Caputh, Germany, 30 August-3 September 1993
32. IUTAM Symposium on Nonlinearity and Chaos in Engineering Dynamics, London, UK, 19-23 July 1993
33. Computational Mathematics, Benin-City, Nigeria, 27-31 January 1992
34. International Conference on Applied and Industrial Mathematics, Terhan, Iran 1991
35. Bifurcation and Chaos: Analysis, Algorithms, Applications, Wurzburg, Germany 1990
36. University of Cambridge, Department of Applied Mathematics and Theoretical Physics, April 1990
37. University of Aberdeen, Department of Engineering, December 1989
38. University College London, Department of Civil Engineering, November 1989
39. 12th ASME Conference on Noise and Vibration, Montreal, Canada, 1989 (keynote lecture)

Publications On Chess Theory

(1) Papers

1. T. Kapitaniak (1985). New adventures with the Latvian Gambit, The South African Chess Player, 10, 121-124.
2. T. Kapitaniak (1983). Akiba Rubinstein, Chess (UK), 48, 6-8.
3. T. Kapitaniak (1983). Comments on Kapitaniak-Welling game, Chess (UK), 47, 331-332.
4. T. Kapitaniak (1981). Metamorphosis of backward pawns, Chess (UK), 46, 180-181.
5. T. Kapitaniak (1981). Psychology in postal chess, Chess (UK), 46, 132-133.

(2) Books

1. T. Kapitaniak (1985). Polish Defence, Chess Enterprises, Inc, Coraopolis, Pennsylvania (second edition 1996)
2. T. Kapitaniak (1985). Sicilian Defence: Wings Gambit, Chess Enterprises, Inc, Coraopolis, Pennsylvania.
3. T. Kapitaniak (1982). Nimzovitch Defence, The Chess Player, Nottingham.
4. T. Kapitaniak (1982). b6!, The Chess Player, Nottingham.
5. T. Kapitaniak (1980). Latvian Gambit, The Chess Player, Nottingham.

Publication On History

1. T. Kapitaniak (2002) Bannockburn 1314, Ibidem, Lodz (in Polish)
2. T. Kapitaniak (2000). Historia Szkocji (History of Scotland), Ibidem, Lodz (in Polish)