

Curriculum
of
Ettore Pennestrì

July 2009

Anagraphical data

Born in Reggio Calabria (Italy) on May 16th 1957. Married with one children.

Address

Department of Mechanical Engineering - University of Rome Tor Vergata
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Research areas

Mechanism design, Kinematics and Dynamics of Machines, Biomechanics.

Education

- Doctor of Engineering Science in Mechanical Engineering, Columbia University in the City of New York. Title of the dissertation: *On the Automatic Design Analysis of Gear-Trains*. (February 1991). Adviser: Prof. Ferdinand Freudenstein.
- Master of Science in Mechanical Engineering, Columbia University in the City of New York. (January 1987). Adviser: Prof. Ferdinand Freudenstein.
- Laurea in Ingegneria Meccanica, Università degli Studi di Roma "La Sapienza". (October 1980).

Academic positions

- Professor of Mechanics Applied to Machines, University of Rome "Tor Vergata" (November 2002-present)
- Associate Professor of Mechanics Applied to Machines, University of Rome "Tor Vergata" (November 1991-2002)
- Associate Professor of Mechanics Applied to Machines, University of Calabria (April 1987-November 1991).

- Researcher, Università of Roma “La Sapienza. (October 1983-April 1987).

From academic year 2002-2003, a teaching position is held at the engineering faculty of Università Campus Biomedico, Roma.

Languages

Italian, English, French.

Publications

See enclosed list. Full text of most recent papers can be downloaded at the following web page <http://www.ingegneriemeccanica.org/papers.htm>

Fellowships

- Consiglio Nazionale delle Ricerche, 12 months at the Department of Mechanical Engineering and Laboratory for Planetary Atmosphere Research - State University of New York at Stony Brook.(1985-86).

Awards

- Procter and Gamble Award of Merit, 8-th Applied Mechanisms Conference, 1983, St. Louis, Missouri.
- Procter and Gamble Award of Merit, 3rd National Applied Mechanisms Conference, 1993, Cincinnati, OH
- Procter and Gamble Award of Merit, 5th National Applied Mechanisms Conference, 1997, Cincinnati, OH
- South Point Chariot Award, 5th National Applied Mechanisms Conference, 1997, Cincinnati, OH. Recipient of this award are entitled to a cash prize and the privilege to keep the trophy for two years.
- Best paper award at the XIV Congress of SIBOT, Italian Society of Biomechanics in Orthopedics and traumatology, Bari, 10-12 Maggio 2001,

Industrial research contracts awarded

1. Consiglio Nazionale delle Ricerche, “Analisi della struttura cinematica di meccanismi utilizzati nel settore della robotica, Contratto n. 90.00384.PF67. Amount L. 30 mil.
2. Consiglio Nazionale delle Ricerche, “Analisi della struttura cinematica di meccanismi utilizzati nel settore della robotica, Contratto n. 91.01949.PF67. Amount: L. 40 mil.
3. Consiglio Nazionale delle Ricerche, “Analisi creativa della struttura cinematica di meccanismi utilizzati nel settore della robotica, Contratto n. 92.01089.PF67. Amount: L. 40 mil.
4. Consiglio Nazionale delle Ricerche, “Analisi della struttura cinematica di meccanismi utilizzati nel settore della robotica, con particolare riferimento ai rotismi epicicloidali, Contratto n.93.00930.PF67. Amount L. 40 mil.
5. Elaborazioni Plastomeccaniche S.p.A., “Ottimizzazione delle leggi di moto di un robot cartesiano a 3 assi motorizzati, Amount L. 6.7 mil (1997).
6. Guidosimplex S.p.A., “Valutazione di talune capacità ergonomiche residue in soggetti con handicap fisici, Amount L. 7.2 mil (1998).
7. Officine Ortopediche ITOP s.r.l., “Sviluppo di una sedia per soggetti distonici, Amount L. 9.5 mil (1999).
8. Centro Ricerche Fiat Società Consortile per Azioni, Orbassano (TO), “Sviluppo di metodologie per lo studio e la progettazione di cinematismi apertura porte/bauli/cofani, Amount L. 50 mil.+IVA (2000-2001).
9. Centro Ricerche Fiat Società Consortile per Azioni, Orbassano (TO), “Sviluppo e implementazione di un modello di manichino vibrazionale per il calcolo in virtuale della vibrazione percepita, (2001-2002). Amount 20 Keuro
10. Centro Ricerche Fiat Società Consortile per Azioni, Orbassano (TO), “Enumerazione di strutture cinematiche di meccanismi per sospensioni di autoveicoli, (2002). Amount 22 Keuro

11. Società Sielco srl. (VV), “Layout di una carrello ferroviario a trazione ibrida”, (2003), Amount 60 Keuro.
12. Società Falv srl. (VV), “Progetto di un innovativo meccanismo per la regolazione delle lamelle nelle persiane”, (2003), Amount 5 Keuro.
13. Società Leiser srl (VR), “Analisi ed ottimizzazione delle caratteristiche di fonoassorbimento di un pannello in legno”, (2003), Amount 5Keuro.
14. Società Guidosimplex srl (Rm), “ Metodologie di progettazione di interni di autovetture per adattamento a guidatori affetti da handicap”, (2004), Importo 65 KEuro.
15. Società Powertech srl (MO), “ Progettazione di un sistema innovativo di camma a fasatura variabile per motocicli”, (2005)
16. MIUR “Sviluppo di modelli di simulazione dinamica per l'analisi della vibrazione trasmessa agli occupanti di veicoli su strada”, 2004. Amount 17.4 Keuro.
17. Società Sorain Cecchini Tecno (RM) (2007), “ Structural analysis of BIOMAX 4”, Amount 15 Keuro
18. Società ACTIA srl (TO) (2007), “Analisi di strumenti per la calibrazione di cronotachigrafi ”, Amount 13 Keuro
19. Società BLUE MAGIC srl (2008), “Progetto concettuale di un innovativo dispositivo per la produzione di energia elettrica per usi domestici”
20. Società Johnson and Johnson Medical SpA (2008), “Sviluppo di una metodologia per la simulazione degli effetti di riempimento dell'apparato digerente umano”.
21. MIUR “Development of low cost hardware devices for human vibration analysis”, 2008. Amount 17 Keuro.

Instruction

Courses: Mechanics applied to machines, Kinematic synthesis, Mechanical Vibrations, Computational Kinematics and Dynamics, Bioprothesis.

Seminars and invited lectures

1. George Mason University, *Theory of Graphs in Mechanical Design*, November 1989;
2. Warsaw Polytechnic Institute, *A Method of Kinematic Analysis of Geared Epicyclic Trains*, July 1990;
3. University of Maryland, *Power-flow and Efficiency Analysis of Epicyclic Spur-Gear Trains*, September 1992.
4. Fiat Research Center, *Dynamic analysis of power gear trains by means of multibody dynamics techniques*, Orbassano (TO), June 1994.
5. University of Cincinnati, *Kinematic Analysis of Geared Epicyclic Trains*, Ottobre 1997.
6. Universidad del Pais Vasco, *Dynamic analysis of planar linkages by means of multibody techniques*, Short Teaching Visit within Socrates Programme, February 1999.
7. Fiat Research Center, *Kinematics and Dynamics of Multibody Dynamics*, Orbassano (TO), Three days intensive course, March 2001.
8. Università degli Studi di Catania, *Una metodologia di analisi multibody: Lineamenti teorici, esperienze didattiche ed applicazioni*, July 2002.
9. Campus Biomedico, Facoltà di Ingegneria, *Applicazioni della cinematica e della dinamica nel settore della bioingegneria*, Roma, October 2002.
10. Rand Worldwide, *Kinematics and the design of mechanisms*, Bologna, October 2002
11. Università degli Studi di Salerno, *An introduction to multibody dynamics*, February 2004
12. General Motors Research Center, *Kinematics and Dynamics of Multibody Systems*, Torino. Three days intensive course, February 2007.
13. Università degli Studi di Firenze, *Coordinates reduction strategies in multibody dynamics: A Review*, Seminar delivered at the doctoral school in energy engineering, March 2008.

Other activities

- Member of the Advisory Board of the journal of Multibody System Dynamics.
- Reviewer for the following journals: ASME Journal of Mechanical Design, Mechanism and Machine Theory, Multibody System Dynamics, Meccanica, International Journal for Numerical Methods in Engineering, International Journal of Vehicle Design, Journal of Multi-body Dynamics, Proceedings of the Institution of Mechanical Engineers.
- Elected coordinator of the Italian Study Group on Kinematics and Dynamics of Multibody Systems. This is a group within AIMETA, the Italian Association of Theoretical and Applied Mechanics.
- Member of the doctoral committee. Candidate: Mr. Antti Loisa. Title of the thesis: *Studies on Integrating Kinematic Design Method with Mechanical Systems Simulation Techniques*, Lappeenranta University, Finland (September 2004)
- Member of the Scientific committee of ECCOMAS 2005, Madrid, June 2005.
- Member of the Scientific committee of XVII Congresso Nazionale Aimeta, Firenze, 11th-15th September 2005
- Sentinella Tecnologica FILAS, October 2006.
- Member of the Scientific committee of Workshop on Advanced Researches in Computational Mechanics and Virtual Engineering, Brasov (Romania), October 2006
- Member of the Scientific committee of ECCOMAS Thematic conference Multibody Dynamics 2007, Milan, June 2007.
- Member of the Scientific committee of the Conference on Multibody System Dynamics, Pitesti, Romania, 25th-26th October 2007
- Member of the doctoral committee. Candidate: Mr. Jukka Karhula. Title of the thesis: *Cardan Gear Mechanism Versus Slider-Crank Mechanism in Pumps and Engines*, Lappeenranta University, Finland (February 2008)

- Member of the Scientific committee of the Workshop on Modern Problems in the Field of the Solid Mechanics, Pitesti, Romania, September 2008
- Member of the Scientific committee of ECCOMAS Thematic conference Multibody Dynamics 2009, Warsaw, June 2009.

Patents

- *Dynamic Articulated Orthopaedic Seat-Back*,
ITRM20000505, 2002-03-18.
- *Platform with blocking devices for wheelchairs*, Application No.RM2008
A 000111

References

- Prof. Jorge Angeles, McGill University, e-mail: angeles@cim.mcgill.ca
- Prof. Javier Garcia de Jalon, Universidad Politécnica de Madrid
- Prof. J.A.C. Ambrósio, IDMEC/IST Lisbon, email:jorge@dem.ist.utl.pt

Publications

International journals

1. DI BENEDETTO, A., PENNESTRI', E., *Analysis of Angular Velocities and Accelerations in Plane Linkages by Means of Numerical Procedure*, ASME Transactions, Journal of Mechanisms, Transmissions and Automation in Design, vol.105, n.4, December 1983, pp.624-630.
2. DI BENEDETTO, A., PENNESTRI', E., *On The Reliability of Some Numerical Methods in Kinematic Analysis*, ASME Transactions, Journal of Mechanisms, Transmissions and Automation in Design, vol.107, n.4, December 1985, pp.513-520.(18-th Mechanisms Conference, Boston 7-10 October 1984).
3. CHEN, J.J., DI BENEDETTO, A., PENNESTRI, E., LEE, T.W., *Design of a Three Degree-of-Freedom Robotic Worktable with Prescribed Entire-Motion Characteristics*, ASME J. of Mechanisms, Transmissions and Automation in Design, vol.108, Sept.1986, pp.373-380.
4. PENNESTRI', E., STROZZIERI, A., *Optimal Design and Dynamic Simulation of a Motorcycle with Linkage Suspension*, International Journal of Vehicle Design, vol.9, n.3, 1988, pp.339-350.
5. CHIANG, C.H., PENNESTRI', E., WEN-YEUAN CHUNG, *On a Technique for Higher Order Synthesis of Four-Bar Function Generators*, Mechanisms and Machine Theory, vol.24, n.3, 1989, pp.195-205.
6. PENNESTRI', E., FREUDENSTEIN, F., *A Systematic Approach to Power-Flow and Static Force Analysis in Epicyclic Spur-Gear Trains*, Proc. 21st Biennial Mechanisms Conference, Chicago, Illinois, Sept.16-19, 1990, pp.63-70. Published also on ASME Journal of Mechanical Design, vol.115, September 1993, pp.639-644.
7. PENNESTRI', E., FREUDENSTEIN, F., *The Mechanical Efficiency of Epicyclic Gear Trains*, Proc. 21st Biennial Mechanisms Conference, Chicago, Illinois, Sept.16-19, 1990, pp.71-79. Published also on ASME Journal of Mechanical Design, vol.115, September 1993, pp.645-651.

8. PENNESTRI', E., *On the Kinematic Analysis of Geared Robotic Wrists*, MECCANICA, International Journal of AIMETA, vol.26, pp.155-160, 1991.
9. PENNESTRI', E., NIU MING QI, *Optimum Balancing of Four-Bar Linkages- A Refined Algorithm*, Mechanism and Machine Theory, Pergamon Press, Vol.26, n.3, pp.337-348, 1991.
10. PENNESTRI', E., BELFIORE,N.P., *Automatic Sketching of Planar Kinematic Chains*, Mechanism and Machine Theory, vol.29, n.1, 1994, pp.177-193.
11. PENNESTRI', E., *Comments on Application of the Hamming Number Technique to Detect Isomorphism among Kinematic Chains and Inversions*, Mechanism and Machine Theory, Pergamon Press, vol.28, n.5, Sept.1993, pp.721-725.
12. PENNESTRI', E., BELFIORE, N.P., *Kinematic Design and Optimization of Automatic Drive Transmissions*, Proc. Third Applied Mechanisms and Robotics Conference, Cincinnati OH, November 1993, Paper n. AMR-93-056. Published also on Journal of Applied Mechanisms and Robotics, Volume 2, N.4, October 1995.
13. PENNESTRI', E., et al., *Kinematic and Power-Flow Analysis of Epicyclic Gear Drives*, MapleTech, vol.I, n.1, Spring 1994, pp.47-54.
14. PENNESTRI', E., BELFIORE, N.P., *On the Numerical Computation of Generalized Burmester Points*, MECCANICA, International Journal of AIMETA, vol.30, 1995, n.2, pp.147-153.
15. PENNESTRI', E., FALASCA, V., *Design of Cam Mechanism Using Maple*, MapleTech, vol.3, n.1, 1996, pp.74-78.
16. BELFIORE, N.P., PENNESTRI', E., *An Atlas of Linkage-Type Robotic Grippers*, Mechanism and Machine Theory, vol.32, 1997, pp.811-833.
17. PENNESTRI', E., *The transition curve of the planar four-bar:an analytical approach*, Mechanism and Machine Theory, vol.33, 1998, pp.1293-1299.

18. PENNESTRI', E., *SymDyn- A Maple Program for Multibody Dynamics Simulation*, MapleTech, vol.5, No.1, 1998, pp.28-32.
19. PENNESTRI', E., URBINATI, F., *Kinematic and Dynamic Analyses of the Tripode Joint*, Multibody System Dynamics, vol.2, No.4, 1998, pp.355-367.
20. BRUTTI, C., PENNESTRI', E., URBINATI, F., *Kinematic Analysis of Spatial Mechanisms by Means of Maple*, MapleTech, vol.5, No.2 & 3, pp.49-57.
21. PENNESTRI', E., *An application of Chebyshev's min-max criterion to the optimal design of damped dynamic vibration absorber*, Journal of Sound and Vibration, 1998, **217**(4), pp.757-765.
22. PENNESTRI', E., RENZI, A., SANTONOCITO, P., *Dynamic modeling of the human arm with video-based experimental analysis*, Multibody System Dynamics, vol.7, 2002, pp.389-406.
23. PENNESTRI', E., VALENTINI, P.P., *Dynamic Analysis of Epicyclic Gear Trains by Means of Computer Algebra*, Multibody System Dynamics, vol.7, 2002, pp.249-264.
24. BIANCOLINI, M.E., BRUTTI, C., PENNESTRI', E., VALENTINI, P.P., *Dynamic, mechanical efficiency and Fatigue Analysis of the double cardan homokinetic joint*, Journal of Vehicle Design, vol.32, n.3/4, Settembre 2003, pp.231-249.
25. PENNESTRI', E., VALENTINI, P.P., *The mechanical efficiency of the basic two d.o.f. epicyclic gear train: A review*, ASME Journal of Mechanical Design, vol.125, n.3, September 2003, p.602-608
26. MANTRIOTA, G., PENNESTRI', E., *Theoretical and Experimental Efficiency Analysis of Multi-Degrees-of-Freedom Epicyclic Gear Trains*, Multibody System Dynamics, vol.9, 2003, pp.389-408.
27. LONDI, F., PENNESTRI', E., VALENTINI, P.P., VITA, L., *Control and Virtual Reality Simulation of Tendon Driven Mechanisms*, Multibody Dynamics 2003, Jorge A.C. Ambrosio (Ed.) IDMEC/IST, Lisbon, Portugal, July 1-4 2003. Multibody System Dynamics Volume: 12, Issue: 2, September 2004, pp. 133-145.

28. PENNESTRI', E., VITA, L., *Strategies for the Numerical Integration of DAE Systems in Multibody Dynamics*, Wiley Periodicals Inc., Computer Applications in Engineering Education, 2004
29. PENNESTRI', E., CROCESI, S., *Kinematic Synthesis of a Curve Scribing Mechanism*, Mechanism and Machine Theory, Vol. 40, n.1, January, 2005, pp. 91-98
30. CAVACECE, M., PENNESTRI', E., SINATRA, R., *Experiences in Teaching Multibody Dynamics*, Multibody System Dynamics, vol.13, 2005, pp.363-369.
31. PENNESTRI', E., VALENTINI ,P.P. VITA, L., *Comfort Analysis of Car Occupant: Comparison Between Multibody and Finite Element Models*, International Journal for Vehicle Systems Modeling and Testing, Vol.1, 2005 Nos. 1/2/3, pp.68-78.
32. PENNESTRI', E., PEZZUTI, E., VALENTINI, P.P., VITA, L., *Computer-aided reconstruction of Italian ancient clocks*, Computer Animation and Virtual Worlds, Wiley Interscience, vol.17, 2006, pp.565-572.
33. PENNESTRI', E. *et al.*, *A New Hysteretic Behavior in the Electrical Resistivity of Flexinol Shape Memory Alloys Versus Temperature*, International Journal of Thermophysics, vol. 27, No.3, May 2006, pp.866-879.
34. PENNESTRI', E. VALENTINI, P.P., VITA, L., *Multibody Dynamics Simulation of Planar Linkages with Dahl Friction*, Multibody System Dynamics, Volume 17, Number 4, May 2007 , pp. 321-347(27)
35. PENNESTRI', E. STEFANELLI, R., VALENTINI, P.P., VITA, L., *Virtual musculo-skeletal model for the biomechanical analysis of the upper limb*, Journal of Biomechanics Volume: 40, Issue: 6, 2007, pp. 1350-1361
36. PENNESTRI', E. STEFANELLI, R., *Linear algebra and numerical algorithms using dual numbers*, Multibody System Dynamics, Volume: 18, Issue: 3, October 2007, pp. 323 - 344

37. PENNESTRI' E., VALENTINI P.P. *Kinematic Design and Multibody Analysis of the Rzeppa Pilot-Lever Joint*, Proc. IMechE. Part K:, Journal of Multi-Body Dynamics. vol. 222, pp. 135-142 ISSN: 1464-4193, 2008 doi:10.1243/14644193JMBD131.
38. PENNESTRI' E., STEFANELLI R, VALENTINI P.P, VITA, L., *Efficiency and wear in cam actuated robotized Gearbox*, International Journal of Vehicle Design. vol. 26, pp. 347-366 ISSN: 0143-3369, 2008, doi:10.1504/IJVD.2008.019091.
39. PENNESTRI' E., VALENTINI, *Design and simulation of a variable-timing variable-lift cam mechanism*, Proc. IMechE Vol. 223 Part D: Journal of Automobile Engineering , DOI: 10.1243/09544070JAUTO1118
40. PENNESTRI' E., de FALCO, D., VITA, L., *An Investigation of the Influence of Pseudoinverse Matrix Calculations on Multibody Dynamics by Means of the Udwadia-Kalaba Formulation*, Journal of Aerospace Engineering, Volume 22, Issue 4, pp. 365-372, ISSN: 0893-1321, 2009
41. PENNESTRI' E., VALENTINI, P.P., CICCIOLO, G., *Enumeration, Kinematics, Static and Mechanical Efficiency of Differential Screw Mechanisms*, ASME Journal of Mechanisms and Robotics, August 2009, Volume 1, Issue 3, 031008 (8 pages) doi:10.1115/1.3147188

National journals

1. DI BENEDETTO, A., PENNESTRI' E., *Un algoritmo di analisi delle configurazioni dei quadrilateri articolati piani*, L'INGEGNERE, n.9, pp.18-34, Settembre 1982.
2. PENNESTRI' E., CAVACECE, M., ORSETTI, F., *Sull'analisi cinematica del quadrilatero articolato sferico*, La Ricerca Scientifica, XX-XV, n.3, 1984.
3. PENNESTRI' E., BELFIORE, N.P., *La minimizzazione dell'inerzia nei rotismi ordinari*, Organi di Trasmissione, Ottobre 1993.

4. BELFIORE, N.P., PENNESTRI', E., *Cinematica, statica e flussi di potenza nei rotismi epicicloidali*, Organi di Trasmissione, Maggio 1996, pp.44-49.

International conference papers

1. DI BENEDETTO, A., VINCIGUERRA, A., PENNESTRI', E., AULISA, L., *Biomechanics of Scoliosis Using a New type of Brace*, Proceedings of the 8-th Canadian Congress of Applied Mechanics, pp.785-786, June 7-12 1981 Moncton, ed E.S.A. Roma.
2. DI BENEDETTO, A., PENNESTRI', E., ORSETTI, F., *Kinematic Analysis of Mechanisms by C-Spline Functions*, Proceedings of the 8-th OSU Applied Mechanisms Conference, St.Louis (Missouri), 19-21 September 1983, pp.44-1,44-6.
3. DI BENEDETTO, A., PENNESTRI', E., ORSETTI, F., *Synthesis of the Spherical Four-Bar Linkage for Prescribed Instantaneous Angular Velocities*, Proceedings of the 8-th OSU Applied Mechanisms Conference, St.Louis (Missouri), 19-21 September 1983, pp.65-1,65-6.
4. DI BENEDETTO, A., PAPA, L., PENNESTRI', E., *Analytical Evaluation and Experimental Tests of Jump Speed in Some Low-Speed Cam Follower Systems*, Proceedings of the 8-th OSU Applied Mechanisms Conference, St.Louis (Missouri), 19-21 September 1983, pp.38-1,38-6.
5. DI BENEDETTO, A., PAPA, L., PENNESTRI', E., *Position Analysis in Plane Multiloop Linkages by Numerical Hybrid Method*, Proceedings of the VI IFTOMM Congress, New Delhi, 15-20 December 1983, vol.I, pp.147-150.
6. DI BENEDETTO, A., PENNESTRI', E., and ELISEI, M.G., *Cam Profile Synthesis by Numerical Quadrature Formula With Step Size Dependent Coefficient*, Proceedings 1-st International Symposium on Design and Synthesis, July 11-13 1984, Tokio, pp.771-776.
7. PENNESTRI', E., *On the Inverse Kinematic Problem of a Three-Degree-of-Freedom Worktable*, Proc.9th OSU Applied Mechanism Conf., Kansas City, Oct.1985, pp.II-1,II-4.

8. DI BENEDETTO, A., PENNESTRI, E., *On the Calculation of Burmester's Point Pairs for Five Finite Positions of a Moving Plane*, Proc.9th OSU Applied Mechanism Conf., Kansas City, Oct.1985,pp.III-1,III-10.
9. PENNESTRI, E., BELFIORE, N.P., *Kinematic and Static Force Analysis of Epicyclic Gear Trains*, Proceedings 1st National Conference on Applied Mechanisms and Robotics, Cincinnati, November 1989, Paper n. AMR89-6B-I.
10. PENNESTRI, E., *A Case Study in Teaching Mechanism Design*, Atti del East-West Congress on Engineering Education, Cracovia, September 23-24 1991.
11. PENNESTRI, E., CHANG, C.K., *On the Determination of Sag and Catenary Tension in Roller Chain Drive Transmissions*, Atti della International Conference on Motion and Power Transmissions, Hiroshima, 24-26 Novembre 1991, pp.451-456. The Italian translation has been also published in *Organi di Trasmissione*, n.8, August 1992, pp.66-71.
12. PENNESTRI, E., *Kinematic Synthesis of Ordinary and Epicyclic Gear Trains for Prescribed Gear Ratio*, Proc. ASME Design Automation Conference, September 1992, Scottsdale, Arizona, vol.2, pp.75-82.
13. PENNESTRI, E., BELFIORE, N.P., SINATRA, R., *A Catalog of Automotive Transmissions with Kinematic and Power-Flow Analysis*, Proc.Third Applied Mechanisms and Robotics Conference, Cincinnati OH, November 1993, Paper n. AMR-93-057.
14. PENNESTRI, E. et al., *Design of a Planetary Leg Mechanism Using Chebyshev's Optimization Method*, in *Robotics in Alpe Adria Region*, Springer Verlag, December 1993, pp.143-147.
15. BELFIORE, N.P., MARCHIORI, C., PENNESTRI, E., *Design of a Gripper: Topological and Kinematic Synthesis, with Dynamic Simulation*, Proc. 3rd International Workshop in Alpe-Adria Region, July 7-9 1994.
16. BELFIORE, N.P., MARCHIORI, C., PENNESTRI, E., *Experimental Analysis of a Solenoid Actuated Gripper With Simple Control System*, Proc. 3rd International Workshop in Alpe-Adria Region, July 7-9 1994.

17. BELFIORE, N.P., PENNESTRI', E., *Characterization of Kinematic and Static Performances of Robotic Geared Wrists*, Advances in Robot Kinematics and Computational Geometry, Kluwer Academic Publishers, Dordrecht, Olanda, pp.209-218, July 1994.
18. BELFIORE, N.P., PENNESTRI', E., *Kinematic and Static Torque Analysis of Remotely Actuated Geared Wrists*, Atti IFAC 94, Capri, September 1994.
19. PENNESTRI', E., BELFIORE, N.P., *Modular Third Order Analysis of Planar Linkages with Applications*, ASME DE vol.70, Mechanism Synthesis and Analysis, Minneapolis, September 1994, pp.99-103.
20. PENNESTRI', E., BELFIORE, N.P., *Dynamic Deflection of a Gear Tooth Using Timoshenko Beam Model*, Proc. 9th IFToMM Congress, Milano, 29th August-2nd September 1995.
21. PENNESTRI', E., BELFIORE, N.P., *A Practical Approach to Kinematic Error Analysis of Epicyclic Precision Gear Trains*, Proc. Fourth Applied Mechanisms and Robotics Conference, Cincinnati OH, December 1995.
22. BELFIORE, N.P., DI BENEDETTO, A., MARCHIORI, C., PENNESTRI', E., *Dynamic Analysis of High-Precision Epicyclic Drives: A Progress Report*, Fourth Applied Mechanisms and Robotics Conference, Cincinnati OH, December 1995.
23. DI BENEDETTO, A., PENNESTRI', E., *Position Analysis and Higher-Order Synthesis of the Swinging-Block Mechanism*, Atti della 1996 ASME Design Engineering Technical Conference and Computers in Engineering Conference, August 18-22, 1996, Irvine, California, Paper 96-DETC/MECH-1021.
24. PENNESTRI', E., *Trajectory planning and torque control for the planar Florida shoulder*, Proceedings of the 6th International Workshop on Robotics in Alpe Adria Region, Giugno 26-28, 1997, pp.253-258.
25. PENNESTRI', E., BELFIORE, N.P., *An Application of Computer Algebra to Multibody Dynamics*, Proc. Fifth National Applied Mechanisms and Robotics Conference, Cincinnati (OH), October 12-15, 1997, vol.2, Paper AMR97-058.

26. PENNESTRI', E., MARTINES, P., *A Refined Finite Element Dynamic Model of High-Speed Cam Follower Systems*, Proc. Fifth National Applied Mechanisms and Robotics Conference, Cincinnati (OH), October 12-15, 1997, vol.1, Paper AMR97-014.
27. BELFIORE, N.P., DI BENEDETTO A., ESPOSITO, A. PENNESTRI', E., *Design of Four-Bar Linkage for Rigid Body Guidance with Optimal Dynamic Characteristics*, Proc. Fifth National Applied Mechanisms and Robotics Conference, Cincinnati (OH), October 12-15, 1997, vol.1, Paper AMR97-001.
28. URBINATI, F., PENNESTRI', E., *A Tool for Third Order Kinematic Analysis of Spatial Mechanism*, Proc. of DETC'98, 1998 ASME Design Engineering Technical Conferences, September 13-16 1998, Atlanta, USA, pp.1-8.
29. BRUTTI, C., PENNESTRI', E., BIANCOLINI, M.E., *On the dynamics of the transmission with a double cardan joint*, Atti X Congresso IFToMM, 1999, Oulu, Finlandia.
30. MAZZONI, F., PENNESTRI', E., PEZZUTI, E., *Wear Evaluation of Triangular Lathe Cutting tools by Image Analysis*, Atti del II Congresso Iberoamericano de Expresion Grafica en Ingenieria Y Arquitectura, vol.II, Salta, Argentina, Settembre 1999.
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