

Ettore Pennestrì

Curriculum vitae

Personal data

Birthplace and birthdate Reggio Calabria, 16 Maggio 1957
Status Married with one children

Research topics

Kinematics, Mechanism Design, Machine dynamics, Powertrain design, Robotics, Biomechanics.

Education

- 1991 **Doctor of Engineering Sciences**, *Columbia University*, New York, Thesis title:
On the Automatic Design Analysis of Gear-Trains.
- 1987 **Master of Sciences in Mechanical Engineering**, *Columbia University*, New York.
- 1980 **Laurea in Ingegneria Meccanica**, *Università degli Studi La Sapienza*, Roma, Titolo della tesi:
Metodologie di Sintesi Cinematica dei Meccanismi Articolati Piani, Semplici e Complessi - Lineamenti teorici, esame critico e sviluppi

Academic positions

- November 2001–present **Professor of Meccanica Applicata alle Macchine**, *Facoltà Ingegneria - Università degli Studi di Roma Tor Vergata*.
- Nov. 1991 – Nov. 2001 **Associate professor of Meccanica Applicata alle Macchine**, *Facoltà Ingegneria - Università degli Studi di Roma Tor Vergata*.
- Apr. 1987 – Nov. 1991 **Associate professor of Meccanica Applicata alle Macchine**, *Facoltà Ingegneria - Università della Calabria*.
- Ott. 1983 – Apr. 1987 **Ricercatore Universitario**, *Facoltà Ingegneria - Università degli Studi di Roma La Sapienza*.

Teaching activities

- 2002- present **Course instructor**, “*Meccanica Applicata alle Macchine e Macchine*”, *Università Campus Biomedico*, Roma.
- 2009-2010 **Course instructor**, “*Cinematica e Dinamica Computazionale*”, *Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata*.
- 2002-a tutt'oggi **Course instructor**, “*Elementi di Meccanica Applicata alle Macchine*”, *Università di Roma Tor Vergata, Facoltà di Medicina, Corso di Laurea di Tecniche Ortopediche*.

- 2002-present **Course instructor**, *"Bioingegneria meccanica"*, Università di Roma Tor Vergata, Facoltà di Medicina, Corso di Laurea di Tecniche Ortopediche.
- 2002-present **Course instructor**, *"Bioingegneria industriale"*, Università di Roma Tor Vergata, Facoltà di Medicina, Corso di Laurea di Tecniche Ortopediche.
- 2000-2010 **Course instructor**, *"Meccanica Applicata alle Macchine II"*, Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata.
- 2000-2010 **Course instructor**, *"Meccanica Applicata alle Macchine I"*, Corso di Laurea in Ingegneria Meccatronica, Università degli Studi di Roma Tor Vergata, Sede di Colleferro, .
- 2000-2010 **Course instructor**, *"Bioprotesi I"*, Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata.
- 2000-2007 **Course instructor**, *"Cinematica e Dinamica Computazionale"*, Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata.
- 1998-1999 **Course instructor**, *"Meccanica delle Vibrazioni"*, Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata.
- 1997-1999 **Course instructor**, *"Elementi di Meccanica Applicata alle Macchine"*, Diploma Universitario di Tecnico Ortopedico, Facoltà di Medicina - Università degli Studi di Roma Tor Vergata.
- 1996-2000 **Course instructor**, *"Elementi di Meccanica delle Macchine"*, Diploma Universitario di Ingegneria Meccanica, Università degli Studi di Roma Tor Vergata, Sede di Colleferro, .
- 1996-1999 **Course instructor**, *"Bioingegneria meccanica"*, Scuola di Specializzazione Ortopedia e Traumatologia della Facoltà di Medicina - Università degli Studi di Roma Tor Vergata.
- 1995-1996 **Course instructor**, *"Meccanica Applicata alle Macchine"*, Facoltà di Ingegneria dell' Università degli Studi di Ancona.
- 1993-1995 **Course instructor**, *"Meccanica delle Vibrazioni"*, Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata.
- 1991- present **Course instructor**, *"Meccanica Applicata alle Macchine"*, Facoltà di Ingegneria dell' Università degli Studi di Roma Tor Vergata, Roma.
- 1988-1998 **Course instructor**, *"Meccanica Applicata alle Macchine (Esercitazioni)"*, Scuola Trasporti e Materiali dell'Esercito, Roma.
- 1988-1998 **Course instructor**, *"Macchine e fondamenti di trasporti"*, Scuola Trasporti e Materiali dell'Esercito, Roma.
Frequentato dai sottotenenti dell'esercito in s.p.e. provenienti dall'Accademia Militare di Modena.
- 1987-1991 **Course instructor**, *"Meccanica Applicata alle Macchine"*, Facoltà di Ingegneria dell' Università della Calabria.
- 1981-1982 **Teaching assistant**, *"Teoria ed Organi dell'Autotelaio II"* Scuola di Applicazione del Servizio Automobilistico dell'Esercito, Roma.

Awards

- Best paper award al XIV Congress of SIBOT, Italian Society of Biomechanics in Orthopedics and traumatology, Bari, 10-12 Maggio 2001.
- South Point Chariot Award, 5th National Applied Mechanisms Conference, 1997, Cincinnati, OH.
- Procter and Gamble Award of Merit, 5th National Applied Mechanisms Conference, 1997, Cincinnati, OH
- Procter and Gamble Award of Merit, 3rd National Applied Mechanisms Conference, 1993, Cincinnati, OH
- Procter and Gamble Award of Merit, 8-th Applied Mechanisms Conference, 1983, St. Louis, Missouri.

Contracts

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 fonoassorbenza 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), Amount 65 KEuro.

15. Società Powertech srl (MO), "Progettazione di un sistema innovativo di camma a fasatura variabile per motocicli", (2005) Amount 25 KEuro.
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", Amount 45 Keuro
20. Società Johnson and Johnson Medical SpA (2008), "Sviluppo di una metodologia per la simulazione degli effetti di riempimento dell'apparato digerente umano", Amount 7 Keuro
21. MIUR (2008) "Development of low cost hardware devices for human vibration analysis", 2008. Amount 17 Keuro.
22. Società Renato Nisi srl (2008) "Sviluppo di un meccanismo innovativo per divani letto", 2008. Amount 50 Keuro.
23. WIXTA (2010) "Analisi del rendimento termico di un dispositivo per il riscaldamento dell'acqua mediante cavitazione", Amount 7.5 Keuro.
24. Società Ethicon Endosurgery (2011), "Analisi funzionale di tubi per bypass", Amount 10 Keuro
25. European Space Agency (2011), "Advanced multibody dynamics formulations for space applications: from theory to implementation", Amount 90 KEuro
26. INAIL (2011), "Development of wireless devices based on inertial sensors for the analysis of instrumental gesture ergonomics work", Amount 95 KEuro

Seminars

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.
14. West Virginia University, *Kinematic analysis of epicyclic gear trains*, February 2009.
15. Università degli Studi di Cassino, *Metodologie di sintesi cinematica dei meccanismi articolati*, Seminar delivered at the doctoral school in energy engineering, Aprile 2010.

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.
- Consultant for Puglia Sviluppo SpA (2010).
- Member of the scientific board of the european project VERITAS (2010)
- Representative of National Research Council (CNR) by International Union Theoretical and Applied Mechanics Union (IUTAM)

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, email: jgjalon@etsii.upm.es
- Prof. J.A.C. Ambrósio, IDMEC/IST Lisbon, email:jorge@dem.ist.utl.pt

Publications

Journal papers

- [1] PENNESTRI' E., BOZZONE M, and SALVINI P. A lookup table based method for wheel-rail contact analysis. *PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS. PROCEEDINGS PART K, JOURNAL OF MULTI-BODY DYNAMICS*, 225, 2011. Accettato per la pubblicazione.
- [2] BOZZONE M, PENNESTRI' E., and SALVINI P. Dynamic analysis of a bogie for hunting detection through a simplified wheel-rail contact model. *MULTIBODY SYSTEM DYNAMICS*, 25:429–460, 2011.
- [3] BELFIORE N.P, MARITI L, PENNESTRI' E., and VALENTINI P.P. Comparison of solution strategies for multibody dynamics equations. *INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING*, 86, 2011.
- [4] VALENTINI P.P and PENNESTRI' E. Modeling elastic beams using dynamic splines. *MULTIBODY SYSTEM DYNAMICS*, 25:271–284, 2011.
- [5] PENNESTRI' E. and VALENTINI P.P. DE FALCO D. An application of the Udwadia-Kalaba dynamic formulation to flexible multibody systems. *JOURNAL OF THE FRANKLIN INSTITUTE*, 347:173–194, 2010.
- [6] PENNESTRI' E. and VALENTINI P.P. Dual quaternions as a tool for rigid body motion analysis: A tutorial with an application to biomechanics. *ARCHIWUM BUDOWY MASZYN*, 57:187–205, 2010. ISBN 0004-0738.
- [7] PENNESTRI' E., DE FALCO D, and 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*, 22:365–372, 2009.
- [8] PENNESTRI' E., CICCIOLO G, and VALENTINI PP. Enumeration, static and mechanical efficiency analysis of differential screw mechanisms. *JOURNAL OF MECHANISMS AND ROBOTICS*, 1, 2009.
- [9] PENNESTRI' E. and VALENTINI P.P. Design and simulation of a variable-timing variable-lift cam mechanism. *PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS. PART D, JOURNAL OF AUTOMOBILE ENGINEERING*, 2009.
- [10] PENNESTRI' E. and VALENTINI P.P. Kinematic design and multibody analysis of the rzeppa pilot-lever joint. *PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS. PROCEEDINGS PART K, JOURNAL OF MULTI-BODY DYNAMICS*, 222:135–142, 2008.
- [11] PENNESTRI' E., STEFANELLI R, VALENTINI P.P, VITA, and L. Efficiency and wear in cam actuated robotized gearbox. *INTERNATIONAL JOURNAL OF VEHICLE DESIGN*, 26:347–366, 2008.
- [12] PENNESTRI' E., ADDOMINE M, BULLO A, and STEFANELLI R. Cronistoria e meccanica dell'orologio della torre s.andrea di chioggia. *CHIOGGIA*, 30:5–19, 2007.
- [13] PENNESTRI' E., VALENTINI P.P, and VITA L. Multibody dynamics simulation of planar linkages with dahl friction. *MULTIBODY SYSTEM DYNAMICS*, 17:321–347, 2007.
- [14] PENNESTRI' E., VALENTINI P.P, STEFANELLI R, and VITA L. Virtual musculoskeletal model for the biomechanical analysis of the upper limb. *JOURNAL OF BIOMECHANICS*, 40:1350–1361, 2007.

- [15] PENNESTRI' E. and STEFANELLI R. Linear algebra and numerical algorithms using dual numbers. *MULTIBODY SYSTEM DYNAMICS*, 18:323–344, 2007.
- [16] PENNESTRI' E., PEZZUTI E, VALENTINI P.P, and VITA L. Computer-aided reconstruction of italian ancient clock. *COMPUTER ANIMATION AND VIRTUAL WORLDS*, 17:565–572, 2006.
- [17] PENNESTRI' E. A new hysteretic behavior in the electrical resistivity of flexinol shape memory alloys versus temperature. *INTERNATIONAL JOURNAL OF THERMOPHYSICS*, 27:866–879, 2006.
- [18] PENNESTRI' E., CAVACECE M, and SINATRA R. Experiences in teaching multibody dynamics. *MULTIBODY SYSTEM DYNAMICS*, 13:363–369, 2005.
- [19] PENNESTRI' E., VALENTINI P.P, and VITA L. Comfort analysis of car occupant: Comparison between multibody and finite element models. *INTERNATIONAL JOURNAL OF VEHICLE SYSTEMS MODELLING AND TESTING*, pages 68–78, 2005.
- [20] PENNESTRI' E. and CROCESI S. Kinematic synthesis of curve scribing mechanism. *MECHANISM AND MACHINE THEORY*, 40:91–98, 2005.
- [21] PENNESTRI' E. and VITA L. Strategies for the numerical integration of dae systems in multibody dynamics. *COMPUTER APPLICATIONS IN ENGINEERING EDUCATION*, 2004.
- [22] LONDI F, PENNESTRI' E., VALENTINI P.P, and VITA L. Control and virtual reality simulation of tendon driven mechanisms. *MULTIBODY SYSTEM DYNAMICS*, 12:133–145, 2004.
- [23] PENNESTRI' E., BIANCOLINI M.E., BRUTTI C., and VALENTINI P.P. Dynamic, mechanical efficiency and fatigue analysis of the double cardan homokinetic joint. *INTERNATIONAL JOURNAL OF VEHICLE DESIGN*, 32:231–248, 2003.
- [24] PENNESTRI' E. and VALENTINI P.P. A review of formulas for the mechanical efficiency analysis of two degrees-of-freedom epicyclic gear trains,. *JOURNAL OF MECHANICAL DESIGN*, 125:602–608, 2003.
- [25] MANTRIOTA G. and PENNESTRI' E. Theoretical and experimental efficiency analysis of multi d.o.f. epicyclic gear trains. *MULTIBODY SYSTEM DYNAMICS*, 9:389–408, 2003.
- [26] PENNESTRI' E., RENZI A, and SANTONOCITO P. Dynamic modeling of the human arm with video-based experimental analysis. *MULTIBODY SYSTEM DYNAMICS*, 7:389–406, 2002.
- [27] PENNESTRI' E. and VALENTINI P.P. Dynamic analysis of epicyclic gear trains by means of computer algebra. *MULTIBODY SYSTEM DYNAMICS*, 7:249–264, 2002.
- [28] PENNESTRI' E. An application of chebyshev's min-max criterion to the optimal design of damped dynamic vibration absorber. *JOURNAL OF SOUND AND VIBRATION*, 217:757–765, 1998.
- [29] PENNESTRI' E. and URBINATI F. Kinematic analysis of spatial mechanisms by means of maple. *MAPLETECH*, 5:49–57, 1998.
- [30] PENNESTRI' E. and URBINATI F. Kinematic and dynamic analyses of the tripod joint. *MULTIBODY SYSTEM DYNAMICS*, 2, n.4:355–367, 1998.
- [31] PENNESTRI' E. Symdyn- a maple program for multibody dynamics simulation. *MAPLETECH*, 5:28–32, 1998.
- [32] PENNESTRI' E. The transition curve of the planar four-bar:an analytical approach. *MECHANISM AND MACHINE THEORY*, 33:1293–1299, 1998.
- [33] PENNESTRI' E. and BELFIORE N.P. An atlas of linkage-type robotic grippers. *MECHANISM AND MACHINE THEORY*, 32:811–833, 1997.

- [34] PENNESTRI' E. and FALASCA V. Design of cam mechanism using maple. *MAPLETECH*, 3:74–78, 1996.
- [35] PENNESTRI' E. and BELFIORE N.P. Kinematic design and optimization of automatic drive transmissions. *JOURNAL OF APPLIED MECHANISMS AND ROBOTICS*, 2, n.2, 1995. Ha ricevuto il Procter and Gamble Award of Merit.
- [36] PENNESTRI' E. and BELFIORE N.P. On the numerical computation of generalized burmester points. *MECCANICA*, 30:147–153, 1995.
- [37] PENNESTRI' E. and BELFIORE N.P. Automatic sketching of planar kinematic chains. *MECHANISM AND MACHINE THEORY*, 29:177–193, 1994.
- [38] PENNESTRI' E. Comments on application of the hamming number technique to detect isomorphism among kinematic chains and inversions. *MECHANISM AND MACHINE THEORY*, 28:721–725, 1993.
- [39] PENNESTRI' E. and FREUDENSTEIN F. The mechanical efficiency of epicyclic gear trains. *JOURNAL OF MECHANICAL DESIGN*, 115:645–651, 1993.
- [40] PENNESTRI' E. and FREUDENSTEIN F. Systematic approach to power-flow and static force analysis in epicyclic spur-gear trains. *JOURNAL OF MECHANICAL DESIGN*, 115:639–644, 1993.
- [41] PENNESTRI' E. On the kinematic analysis of geared robotic wrists. *MECCANICA*, 26:155–160, 1991.
- [42] PENNESTRI' E. and NIU MING QI. Optimum balancing of four-bar linkages - a refined algorithm. *MECHANISM AND MACHINE THEORY*, 26:337–348, 1991.
- [43] PENNESTRI' E., CHIANG C.H, and WEN-YEUAN CHUNG. On a technique for higher order synthesis of four-bar function generators. *MECHANISM AND MACHINE THEORY*, 24:195–205, 1989.
- [44] PENNESTRI' E. and STROZZIERI A. Optimal design and dynamic simulation of a motorcycle with linkage suspension. *INTERNATIONAL JOURNAL OF VEHICLE DESIGN*, 9:339–350, 1988.
- [45] PENNESTRI' E., CHEN J.J, DI BENEDETTO A, and LEE T.W. Design of a three degrees-of-freedom robotic worktable with prescribed entire motion characteristics. *JOURNAL OF MECHANISMS, TRANSMISSIONS, AND AUTOMATION IN DESIGN*, 108:373–380, 1986.
- [46] DI BENEDETTO A and PENNESTRI' E. On the reliability of some numerical methods in kinematic analysis. *JOURNAL OF MECHANISMS, TRANSMISSIONS, AND AUTOMATION IN DESIGN*, 107:513–520, 1985.
- [47] DI BENEDETTO A and PENNESTRI' E. Analysis of angular velocities and accelerations in plane linkages by means of numerical procedure. *JOURNAL OF MECHANISMS, TRANSMISSIONS, AND AUTOMATION IN DESIGN*, 105:624–630, 1983.

Conference papers (From 2000-present)

- [1] PENNESTRI' E., BELFIORE N.P, MATRISCIANO A, and MICANGELI A. Correlation analysis between students' cognitive styles and their attitude to join kinematics and dynamics open source codes projects. In *Proceedings ECCOMAS Thematic conference Multibody Dynamics 2011*, July 4th- 7th 2011.
- [2] PENNESTRI' E., VALENTINI P.P, TIMMI A, and ASCHIERI P. On the use of motion capture for kinetic analysis of fast sport gestures. In *Proceedings of the ECCOMAS Thematics Conference Multibody Dynamics 2011*, July 4th- 7th 2011.
- [3] PENNESTRI' E., MARITI L, MINOTTI M, and BELFIORE N.P. Flexible slider-crank dynamic analysis by means of gauss' principle of least action. In *Book of abstracts*, pages 247–248, May 25-27 2010.

- [4] PENNESTRI' E., MARITI L, VALENTINI P.P, and BELFIORE N.P. Review and comparison of solution strategies for multibody dynamics equations. In *Book of Abstracts*, pages 247–248, FIN, May 25-27 2010.
- [5] PENNESTRI' E., BOZZONE M, and SALVINI P. Analysis of the critical speed of rail vehicles in a variety of configurations. In *Book of Abstracts*, pages 119–120, LAPPEENRANTA – FIN, May 25-27 2010.
- [6] PENNESTRI' E., VALENTINI P.P, VITA L, and CANDIDO E. The multibody 2d approach for agricultural and forestry tractors roll over protective structure design. In *Book of Abstract*, pages 217–218, FIN, May 25-27 2010.
- [7] BOZZONE M, PENNESTRI' E., and SALVINI P. A compliance based method for wheel-rail contact analysis. In *Proceedings of the CM2009*, ITA, September 15-18 2009.
- [8] CARNEVALE D, PENNESTRI' E., VALENTINI P.P, SCIRÈ INGASTONE F, ROSSI V, and CAVACECE M. Comparison of different seat-to-head transfer functions for vibrational comfort monitoring of car passengers. In *Atti XIX Congresso AIMETA*, ITA, 14-17 Settembre 2009.
- [9] PENNESTRI' E., VALENTINI P.P, and COZZOLINI A. Virtual model of rzeppa joint to assess performance in presence of geometric and dimensional tolerances. In *ECCOMAS Thematic Conference Multibody Dynamics 2009*, 29th June - 2nd July , 2009.
- [10] PENNESTRI' E. and VALENTINI P.P. Dual quaternions as a tool for rigid body motion analysis: A tutorial with an application to biomechanics. In *ECCOMAS Thematic Conference Multibody Dynamics 2009*, POL, 29th June - 2nd July 2009.
- [11] PENNESTRI' E. and VALENTINI P.P. Computation of body motion parameters from noisy landmark data obtained from video-based measurements. In *Workshop on Modern Problems in the Field of Solid Mechanics*, PITESTI – ROM, 2008.
- [12] PENNESTRI' E. and VALENTINI P.P. Coordinate reduction strategies in multibody dynamics: A review. In *Atti Conference on Multibody System Dynamics*, 25-26 Ottobre 2007.
- [13] PENNESTRI' E. and STEFANELLI R. Linear algebra and numerical algorithms using dual numbers. In *Atti Congresso ECCOMAS Thematic Conference Multibody Dynamics 2007*, ITA, 25-28 Giugno 2007.
- [14] PENNESTRI' E., STEFANELLI R, and VALENTINI P.P. Optimal design and dynamic analysis of rzeppa pilot-lever joint. In *Atti XVIII Congresso AIMETA 2007*, 11-14 Settembre 2007.
- [15] PENNESTRI' E., STEFANELLI R, and VALENTINI P.P. Optimal design and dynamic analysis of rzeppa pilot-lever joint. In *Atti Congresso ECCOMAS Thematic Conference Multibody Dynamics 2007*, 25-28 Giugno 2007.
- [16] PENNESTRI' E., VALENTINI P.P, and VITA L. Dynamic analysis of intermittent-motion mechanisms through the combined use of gauss principle and logical functions. In *IUTAM Symposium on Multiscale Problems in Multibody System Contacts*, volume 1, pages 195–204. Springer Verlag, 20-23 February 2006.
- [17] PENNESTRI' E., VALENTINI P.P, and VITA L. Kinematics, dynamics and mechanical efficiency of a cardan joint with manufacturing tolerances - part ii. In *Advanced Researches in Computational Mechanics and Virtual Engineering*, pages 25–32, BRASOV, Ottobre 2006.
- [18] PENNESTRI' E., VALENTINI P.P, and VITA L. Kinematics, dynamics and mechanical efficiency of a cardan joint with manufacturing tolerances - part i. In *Advanced Researches in Computational Mechanics and Virtual Engineering*, pages 18–24, BRASOV, Ottobre 2006.

- [19] PENNESTRI' E., R. STEFANELLI, P.P. VALENTINI, and L. VITA. Using a virtual dummy to simulate vibration dose value for different car occupants. September 24-28, 2005.
- [20] DE FALCO D., PENNESTRI' E., and VITA L. Esperienze numeriche sulla formulazione multibody di udwadia-kalaba. 2005.
- [21] PENNESTRI' E., DE FALCO D., and VITA L. The udwadia-kalaba formulation: A report on its numerical efficiency in multibody dynamics simulations and on its teaching effectiveness. 21-24 Giugno 2005.
- [22] CAVACECE M, PENNESTRI' E., and VITA L. Sull'enumerazione di meccanismi a vite. In *Proceedings Congresso Aimeta 2005*, 2005.
- [23] PENNESTRI' E., STEFANELLI R., VALENTINI P.P., and VITA L. A dual number approach to the kinematic analysis of spatial linkages with dimensional and geometric tolerances,. September 2004. Paper DETC04/DAC-57324.
- [24] PENNESTRI' E., STEFANELLI R., VALENTINI P.P., and VITA L. A dynamic simulation of cam actuated robotized gearbox. September 2004. Paper DETC04/DAC-57322.
- [25] PENNESTRI' E., VITA L., and DEL CITTO F. Coordinates reduction and numerical integration of models of constrained multibody systems. 24-28 July, . 2004.
- [26] PENNESTRI' E., CAVACECE M. VALENTINI P.P., and VITA L. Mechanical efficiency of a cardan joint. volume Paper DETC04/DAC-57317, 2004.
- [27] PENNESTRI' E., R. VALENTINI P.P., VITA L., and STEFANELLI R. A dual number approach to the kinematic analysis of spatial linkages with dimensional and geometric tolerances. volume DETC04/DAC-57324, 2004.
- [28] PENNESTRI' E., STEFANELLI R., VALENTINI P.P., and VITA L. A dynamic simulation of cam actuated robotized gearbox. volume DETC04/DAC-57322, 2004.
- [29] TARANTINO U, PENNESTRI' E., and CAMPANACCI G. Computation of rigid body motion parameters from video-based measurements. In *Biomechanics and Sports*, pages 11-22, DEU, 2004. Springer Verlag.
- [30] PENNESTRI' E. and VITA L. Mechanical efficiency analysis of cardan joint with manufacturing tolerances. volume Paper 053RAAD03, 2003.
- [31] PENNESTRI' E. and VITA L. Mechanical efficiency analysis of cardan joint with manufacturing tolerances. 2003.
- [32] LONDI F., PENNESTRI' E., and VITA L. A method to investigate vibrations in tendon driven mechanisms a method to investigate vibrations in tendon driven mechanisms. volume DETC2003/VIB-48335, 2003.
- [33] CAVACECE M, PENNESTRI' E., VALENTINI P.P, and VITA L. Analisi del rendimento meccanico di un giunto cardanico. In *Proceedings XVI Congresso Nazionale Aimeta*, 2003.
- [34] CAVACECE M, PENNESTRI' E., VALENTINI P.P, and VITA L. Analisi del rendimento meccanico di un giunto cardanico. In *Proceedings of XVI Congresso Nazionale Aimeta, Ferrara, 2003*, 2003.
- [35] PENNESTRI' E., SFERRA D., VALENTINI P.P., and BALDASCINI F. Dynamic simulation of a metal-belt cvt under transient conditions. 2002. Paper DETC2002-MECH-34228.
- [36] BARIZZONE F., CAMPANILE P., CELIBERTI L., PENNESTRI' E., and VALENTINI P.P. The development of a virtual dummy for the vibrational comfort analysis of car drivers. 1-4 agosto Dearborn, Michigan, USA 2001. Reperibile sul sito <http://www.ingegneriemeccanica.org/papers.htm>.

- [37] BARIZZONE F, CAMPANILE P, CELIBERTI L, PENNESTRI' E., and VALENTINI P.P. Implementazione mediante tecniche multibody di un modello per la simulazione delle dinamiche vibrazionali uomo-sedile. In *Proceedings XV Congresso AIMETA*, Settembre, Taormina 2001. Reperibile sul sito <http://www.ingegneriemeccanica.org/papers.htm>.
- [38] PENNESTRI' E. and SANTONOCITO P. A parametric study of the dynamics for the shudderless tripod joint. 2000. Paper DETC-MECH14079.

Book chapters

- [1] E. PENNESTRI' and P.P. VALENTINI. *Buletin Stiintific seria Mecanica Aplicata*, volume 1, chapter Design Charts based methods for the kinematic synthesis of four-bar function generators, pages 128–143. University of Pitesti, PITESTI – ROM, 2009.
- [2] E. PENNESTRI' and P.P. VALENTINI. *Buletin Stiintific seria Mecanica Aplicata*, volume 1, chapter A review of dimple analytical methods for the kinematic synthesis of four-bar and slider-crank function generators for two and three prescribed finite positions, pages 104–127. University of Pitesti, PITESTI, 2009.
- [3] E. PENNESTRI' and P.P. VALENTINI. *Multibody Dynamics Computational Methods and Applications*, volume 12, chapter Linear Dual Algebra Algorithms and their Application to Kinematics. Springer Verlag, DEU, 2008.
- [4] E. PENNESTRI', P.P. VALENTINI, and L. VITA. *IUTAM Symposium on Multiscale Problems in Multibody System Contacts*, chapter Dynamic Analysis of Intermittent-Motion Mechanisms Through the Combined Use of Gauss Principle and Logical Functions, pages 195–204. Springer Verlag, DEU, 2006.
- [5] E. PENNESTRI' and L. VITA. *Advances in Computational Multibody Systems*, chapter Multibody Dynamics in Advanced Education. Springer Verlag, DEU, 2005.
- [6] E. PENNESTRI' and al. *Modern Kinematics - Developments in The Last Forty Years*, chapter Gearing and Geared Systems - in ed. A.G. Erdman, pages 231–270. USA, 1993. Wiley Series in Engineering.

Books and Monographs

- [1] PENNESTRI' E. and CHELI F. *Cinematica e Dinamica dei Sistemi Multibody - Applicazioni*. Casa Editrice Ambrosiana, MILANO – ITA, 2008.
- [2] PENNESTRI' E. and CHELI FEDERICO. *Cinematica e Dinamica dei Sistemi Multibody*, volume I. Casa Editrice Ambrosiana, MILANO, 2006.
- [3] BELFIORE N.P, DI BENEDETTO A, and PENNESTRI' E. *Fondamenti di Meccanica Applicata alle Macchine*. Casa Editrice Ambrosiana, MILANO – ITA, 2005.
- [4] PENNESTRI' E. *Dinamica Tecnica e Computazionale - Sistemi Multibody*. Casa Editrice Ambrosiana, MILANO – ITA, 2002.
- [5] PENNESTRI' E. *Dinamica Tecnica e Computazionale - Sistemi lineari*, volume I. Casa Editrice Ambrosiana, MILANO – ITA, 2001.
- [6] DI BENEDETTO A and PENNESTRI' E. *Introduzione alla Cinematica dei Meccanismi - Metodi di analisi*, volume III. Casa Editrice Ambrosiana, MILANO – ITA, 1999.
- [7] DI BENEDETTO A and PENNESTRI' E. *Introduzione alla Cinematica dei meccanismi - Moti Infinitesimi*, volume II. Casa Editrice Ambrosiana, MILANO – ITA, 1993.
- [8] DI BENEDETTO A and PENNESTRI' E. *Introduzione alla Cinematica dei Meccanismi - Struttura e Moti Finiti*, volume I. Casa Editrice Ambrosiana, MILANO – ITA, 1992.

- [9] PENNESTRI' E. *On the Automatic Design Analysis of Gear Trains*. University Microfilms International, ANN ARBOR, MICHIGAN – USA, 1990. Doctoral Dissertation, Columbia University in the City of New York, Order Number 9127952.