

**FORMATO EUROPEO  
PER IL CURRICULUM  
VITAE**



Nome

**LUCIO DEMEIO**

**ESPERIENZA LAVORATIVA**

- 01/04/2005-31/10/2023: Professore Associato presso la Facoltà di Ingegneria dell'Università Politecnica delle Marche Collocamento a riposo: 01/11/2023
- 27/11/1995-31/03/2005: Ricercatore presso la Facoltà di Ingegneria dell'Università Politecnica delle Marche  
Facoltà di Ingegneria, Università Politecnica delle Marche, Ancona;
- 30/09/1993-17/11/1995: Postdoctoral Fellow presso l'Applied Physics Lab della Johns Hopkins University, Laurel, MD, USA;
- 01/08/1990-31/08/1993: Postdoctoral Fellow presso il Chemistry Department della University of British Columbia, Vancouver, Canada;
- 01/10/1983-30/10/1985: EURATOM Research Fellow, presso il FOM-Instituut voor Plasmafysika – Rijnhuizen, Nieuwegein, Paesi Bassi;
- 16/01/1981-130/09/1983: Insegnante di matematica presso vari istituti di scuola superiore, Prov. Di Gorizia;
- 16/10/1979-15/01/1981: servizio militare quale Ufficiale di Complemento.

**ISTRUZIONE E FORMAZIONE**

- 1986-1989: Ph.D. in Fisica-Matematica, presso il Center for Transport theory and Mathematical Physics, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA; Dottorato conseguito a maggio 1989;
- 1972-1978: Laurea in Fisica, Università degli Studi di Trieste; laurea conseguita il 15/03/1978;
- 1972: Diploma di Maturità Scientifica, Liceo Scientifico Michelangelo Buonarroti di Monfalcone (GO).

	<b>MADRELINGUA</b>	
	<b>ALTRE LINGUA</b>	
• Capacità di lettura • Capacità di scrittura • Capacità di espressione orale	<b>ITALIANO</b>	
	<b>INGLESE</b>	
	eccellente	
	eccellente	
	eccellente	
	<b>ALLEGATI</b>	ELENCO PUBBLICAZIONI.
<i>Pagina 2 - Curriculum vitae di [ COGNOME, gnome ]</i>		Per ulteriori informazioni: <a href="http://www.cedefop.eu.int/transparency">www.cedefop.eu.int/transparency</a> <a href="http://www.europa.eu.int/comm/education/index_it.html">www.europa.eu.int/comm/education/index_it.html</a> <a href="http://www.eurescv-search.com">www.eurescv-search.com</a>

## ELENCO PUBBLICAZIONI

1. L. Demeio and M. Tessarotto, *Kinetic instabilities in the solar wind due to electron nonthermal properties*, Il Nuovo Cimento, **26**, 397 (1979).
2. L. Demeio and A. Nocentini, *Stati stazionari di un plasma di tipo tokamak* (Steady-States of a Tokamak Plasma), Seminario Fisico - Matematico, Problemi di Meccanica Statistica e Fisica del Plasma, Trieste 1979, Ed. CLUET, Trieste, 79 (1981) (in Italian).
3. L. Demeio and A. Nocentini, *A new pseudo-classical transport theory for tokamak plasmas*, Proc. 11th European Conference on Controlled Fusion and Plasma Physics, Aachen (Germany), September 5 - 9 1983, 259 (1983).
4. L. Demeio and A. Nocentini, *On the compatibility of ignition with sputtering in a tokamak reactor*, Il Nuovo Cimento, **80B**, 145 (1984).
5. M. Tessarotto and L. Demeio, *Role of finite aspect-ratio in collisional transport theory*, Proc. Workshop on Mathematical Aspects of Fluid and Plasma Dynamics, Trieste, Italy, May 30 - June 2, 1984 Quaderni del CNR - GNFM, 555 (1984).
6. L. Demeio and F. Engelmann, *Runaway effects induced by electron cyclotron waves*, Proc. Workshop on Mathematical Aspects of Fluid and Plasma Dynamics, Trieste, Italy, May 30 - June 2, 1984 Quaderni del CNR - GNFM, 201 (1984).
7. L. Demeio and F. Engelmann, *Velocity space diffusion of electrons induced by a beam of electron cyclotron waves of finite size in toroidal geometry*, Proc. 5th Int. Workshop on ECE and ECRH, San Diego, CA, November 9 - 12, 1985, 238 (1985).
8. L. Demeio and F. Engelmann, *Electron runaway effects induced by electron cyclotron waves*, Proc. 5th Int. Workshop on ECE and ECRH, San Diego, CA, November 9 - 12, 1985, 97 (1985).
9. L. Demeio and F. Engelmann, *Velocity space diffusion of electrons induced by a beam of electron cyclotron waves of finite size in toroidal geometry*, Plasma Physics, **28**, 1851 (1986).
10. L. Demeio, *Numerical simulations of Vlasov plasmas*, Proc. NATO Adv. Res. Workshop, "Physical processes in hot cosmic plasmas", Vulcano, Italy, May 29, June 2, 1989, 141 (1989).
11. L. Demeio and P. F. Zweifel, *Numerical simulations of perturbed Vlasov equilibria*, Physics of Fluids B, **2**, 1252 (1990).
12. L. Demeio, *A numerical study about the existence of BGK modes near a Maxwellian equilibrium*, Proc. 11th Intern. Transp. Theory Conf., Blacksburg, VA, U.S.A., May 1989 in "Operator Theory: Advances and Applications" **51**, 109 (1991).
13. B. Shizgal and L. Demeio, *Comparison of WKB and SWKB solutions of Fokker-Planck equations with exact results; application to electron thermalization*, Canadian Journal of Physics, **69**, 712 (1991).
14. L. Demeio and J. P. Holloway, *Numerical simulations of BGK modes*, Journal of Plasma Physics, **46**, 63 (1991).
15. L. Demeio, *The inclusion of collisional effects in the splitting scheme*, Journal of Computational Physics, **99**, 203 (1992).
16. L. Demeio, *Numerical simulations of BGK modes in Maxwellian plasmas*, Proc. 1st Symposium on Plasma Dynamics, Trieste, Italy, June 26-28, 1991. Ed. M. Tessarotto, Consorzio di Magnetofluidodinamica, Trieste University, Italy (1992).
17. J. Barrett, L. Demeio and B. Shizgal, *Coulomb Milne problem*, Physical Review A, **45**, 3687 (1992).
18. K. Kowari, L. Demeio and B. Shizgal, *Electron degradation and thermalization in \$CH\_4\$ gas; a comparison of the Spencer-Fano equation and the Boltzmann*

- equation*, Journal of Chemical Physics, **97**, 2061 (1992).
19. L. Demeio and B. Shizgal, *A WKB/SWKB approach to time dependent nucleation*, 11th International Symposium on Rarefied Gas Dynamics, University of British Columbia, Vancouver, Canada, July 26-31 1992.
  20. L. Demeio and B. Shizgal, *Time dependent nucleation II. A semiclassical approach*, Journal of Chemical Physics, **98**, 5713 (1993).
  21. L. Demeio and B. Shizgal, *A uniform WKB approach to electron transport in molecular gases*, Journal of Chemical Physics, **99**, 7638 (1993).
  22. L. Demeio and L. Monchick, *Collision kernels for the Waldmann-Snider equation: generalization to gas mixtures*, Physica A **214**, 95 (1995).
  23. L. Demeio, S. Green and L. Monchick, *Effects of velocity changing collisions on line shapes of HF in Ar*, Journal of Chemical Physics, **102**, 9160 (1995).
  24. L. Demeio and G. Frosali, *Effects of short-range binary collisions on the stability properties of longitudinal plasma waves*, Proc. III Congresso Nazionale della SIMAI, Salice Terme, PV, 27-31 Maggio 1996, p. 526.
  25. L. Demeio and G. Frosali, *Effects of short-range binary collisions on the stability properties of longitudinal plasma waves*, Internal Report N. 7/1996, Dip. di Matematica ``V. Volterra'', Universita' degli Studi di Ancona.
  26. L. Demeio, *Linear stability of the spatially homogeneous equilibria of the Vlasov-Poisson system with collisions*, Reports on Mathematical Physics, **40**, 455 (1997).
  27. L. Demeio, G. Frosali *Diffusion approximations of the Boltzmann equation: comparison results for linear model problems*, Atti Sem. Mat. Fis. Univ. Modena, Suppl. Vol. XLVI, 653-675 (1998).
  28. J. Banasiak, L. Demeio *Quasi steady-state solutions of kinetic equations in runaway regime*, Transport Theory and Statistical Physics {bf 28} (1), 1-29 (1999).
  29. L. Demeio *Multiple time scale analysis of runaway phenomena*, Transport Theory and Statistical Physics, **27** (3-4), 333 (1998).
  30. L. Demeio, G. Frosali *Asymptotic analysis of kinetic equations in runaway regime*, Proc. XIII Congresso Nazionale AIMETA, Siena, 29/9-3/10/1997, vol. I, pag. 95, Ed. ETS.
  31. L. Demeio, G. Frosali, *Approximate solutions of kinetic equations in runaway regime*, Proc. IX Int. Conf. on Waves and Stability in Cont. Media, Bari (Italy), October 6-11, 1997, Suppl. Rend. Cir. Mat. Palermo Serie II, N. 57, 211-216 (1998).
  32. L. Demeio, *Laplace transform approach to runaway phenomena*, Internal Report N. 1/1998, Dipartimento di Matematica ``V. Volterra'', Universita' degli Studi di Ancona.
  33. L. Demeio e G. Frosali, *Approssimazioni diffusive di equazioni cinetiche con collisioni elastiche e dinastiche: un confronto tra scalature diverse*, Proc. IV Congresso Nazionale della SIMAI, Giardini Naxos (ME), 1-5 Giugno 1998, vol. 2, p. 316.
  34. L. Demeio, M. Manassero e D. Sani, *Modelli matematici degli esperimenti di trasporto di sostanze inquinanti: studio numerico dell'equazione di diffusione*, Proc. IV Congresso Nazionale della SIMAI, Giardini Naxos (ME), 1-5 Giugno 1998, vol. 2, p. 320.
  35. L. Demeio, D. Sani and M. Manassero, *A numerical method for the solution of the diffusion equation in multilayered systems*, Internal Report N. 5/1998, Dipartimento di Matematica ``V. Volterra'', Universita' degli Studi di Ancona.
  36. J. Banasiak, L. Demeio, *Diffusion approximations of kinetic equations with inelastic scattering: asymptotic analysis and numerical results*, Transport Theory and Statistical Physics, **28** (5), 475-498 (1999).
  37. L. Demeio and G. Frosali, *Different scalings in the asymptotic analysis of kinetic*

- equations with elastic and inelastic scattering*, Internal Report N. 2/1999,  
Dipartimento di Matematica ``V. Volterra'', Universita' degli Studi di Ancona.
38. L. Demeio, *A numerical study of linear and nonlinear superpositions of BGK modes*, Transport Theory and Statistical Physics, **30** (4-6), 457-470 (2001).
  39. L. Demeio, *Collisional relaxation of undamped plasma waves*, Proc. 4th International Conference on Industrial and Applied Mathematics, Edinburgh, GB, July 5 - 9 1999, ICIAM99, p. 253.
  40. L. Demeio and G. Frosali *Theoretical and numerical comparison of hydrodynamic limits for kinetic equations with elastic and inelastic scattering*, Proc. X Int. Conf. on Waves and Stability in Cont. Media, Vulcano (Messina-Italy), June 7 - 12, 1999, p. 146-158, World Scientific (2001).
  41. L. Demeio and G. Frosali, Diffusion limits of the linear Boltzmann equation in extended kinetic theory: weak and strong inelastic collisions, *Rend. Seminario Univ. Milano*, Vol. **LXIX** 51-81(1999-2000)
  42. L. Demeio and D. Sani, *Multiple time scale analysis of water-salts coupled flow transport equations*, Internal Report N. 4/2000, Dipartimento di Matematica ``V. Volterra'', Universita' degli Studi di Ancona.
  43. L. Demeio and D. Sani, *A proposed model for water-salts coupled flow transport equations*, Mathematical and Computer Modelling, December 2000, in press.
  44. L. Demeio, L. Barletti, P. Bordone and C. Jacoboni, *Wigner function for multiband transport in semiconductors*, Transport Theory and Statistical Physics, **32** (3-4), 321-339 (2003) (Special issue with Proceedings of the 12th International Conference on Transport Theory, London, July 8-14, 2001).
  45. L. Demeio, L. Barletti, A. Bertoni, P. Bordone and C. Jacoboni, *Wigner-function approach to multiband transport in semiconductors*, Physica B, **314**, 104-107 (2002) (Special issue with Proceedings of the 12th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors, Santa Fe, August 27-31, 2001).
  46. L. Barletti, L. Demeio, *Wigner-function approach to multiband transport in semiconductor devices*, Proc. VI Congresso Nazionale SIMAI, Chia Laguna (CA-Italy) May 27 - 31, 2002.
  47. L. Demeio, *Perturbative approach to Quantum BGK Modes*, Proc. VI Congresso Nazionale SIMAI, Chia Laguna (CA-Italy) May 27-31, 2002.
  48. L. Demeio, P. Bordone and C. Jacoboni, *Numerical and analytical applications of multiband transport in semiconductors*, Proc. XXIII Symposium on Rarefied Gas Dynamics, Whistler, BC, Canada, July 20-25, 2002, pp. 92-98 (AIP Conference Proceedings vol. 663, New York, 2003).
  49. L. Demeio, P. Bordone and C. Jacoboni, *Multi-band, non-parabolic Wigner-function approach to electron transport in semiconductors*, Transport Theory and Statistical Physics, **34**(7), 499-522 (2005).
  50. L. Demeio, *Splitting-scheme Solution of the Collisionless Wigner Equation with Non-Parabolic Band Profile*, Journal of Computational Electronics, **2**, 313-316 (2003) (Special issue with Proceedings of the 9th International Workshop on Computational Electronics, Monte Porzio Catone (Roma), May 25-28, 2003).
  51. L. Demeio, P. Bordone and C. Jacoboni *Numerical simulation of an intervalley transition by the Wigner-function approach*, Semiconductor Science and Technology, **19**, 1-3 (2004) (Special issue with Proceedings of the 18th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors, Modena, July 28 - August 1, 2003).
  52. S. Lenci, L. Demeio and M. Petrini, *Some aspects of the non-smooth dynamics of an impacting inverted pendulum*, Proc. 5th Euromech Nonlinear Dynamics Conference,

- ENOC-2005, Eindhoven, The Netherlands, August 7-12 2005 (submitted).
53. S. Lenci, L. Demeio and M. Petrini, *Response scenario and non-smooth features in the nonlinear dynamics of an impacting inverted pendulum*, Journal of Computational and Nonlinear Dynamics **1**, 56-64 (2005).
  54. L. Demeio, *Quantum Corrections to Classical BGK Modes in Phase Space*, Transport Theory and Statistical Physics, **36** (1-3), 137-158 (2007).
  55. L. Demeio and S. Lenci, *Asymptotic analysis of chattering oscillations for an impacting inverted pendulum*, **59**, 419-434 (2006)
  56. L. Barletti, L. Demeio and G. Frosali, *Multiband quantum transport models for semiconductor devices*, in: Transport Phenomena and Kinetic Theory, Applications to Gases, Semiconductors, Photons and Biological Systems, Eds. C. Cercignani, E. Gabetta, 55-89, Birkhauser, Boston (2007).
  57. O. Morandi and L. Demeio, *Simulation of the Rashba Effect in a Multiband Quantum Structure*, Journal of Computational Electronics, **6**(1-3), 231-234 (2007)
  58. L. Demeio and S. Lenci, *Forced nonlinear oscillations of semi-infinite cables and beams resting on a unilateral elastic substrate*, Nonlinear Dynamics **49**, 203-215 (2007).
  59. O. Morandi and L. Demeio, *A Wigner-function approach to Landau-Zener transitions based on the multiband-envelope-function model*, Transport Theory and Stat. Phys., vol. 37 (2007) 437-459.
  60. L. Demeio and S. Lenci, *Second-order solutions for the dynamics of a semi-infinite cable on a unilateral substrate*, Accepted for publication to the Journal of Sound and Vibration, Special issue for the Proc. of the Euromech Colloquium 403, "Geometrically Nonlinear Vibrations of Structures", Porto (Portugal), July 9-11, 2007
  61. L. Demeio, G. Lancioni and S. Lenci, *Nonlinear resonances in infinitely long 1D continua on a tensionless substrate*, Nonlinear Dynamics vol. 66 n. 3 (2011) 271-284.
  62. P. Belardinelli, M. Brocchini, L. Demeio and S. Lenci, *Dynamical characteristics of an electrically actuated microbeam under the effects of squeeze-film and thermoelastic damping*, International Journal of Engineering Science, vol. 69 (2013) 16-32.
  63. L. Demeio and S. Lenci, *Nonlinear resonances of a semi-infinite cable on a nonlinear elastic foundation*, Communications in Nonlinear science and Numerical Simulation, vol. 18 n. 3 (2013) 785-798.
  64. P. Belardinelli, S. Lenci and L. Demeio, *A comparison of different semi-analytical techniques to determine the nonlinear oscillations of a slender microbeam*, Meccanica, vol.49 n. 8 (2014) 1821-1831
  65. F. Clementi, C.E.N. Mazzilli, L. Demeio and S. Lenci, *Nonlinear vibrations of non-uniform beams by the MTS asymptotic expansion method*, Continuum Mechanics and Thermodynamics (2015) 703-717.
  66. P. Belardinelli, S. Lenci and L. Demeio, *Vibration frequency analysis of an electrically-actuated microbeam resonator accounting for thermoelastic coupling effects*, International Journal of Dynamics and Control, vol. 3 n. 2 (2015) 157-172.
  67. L. Demeio, F. G. Alessio and A. I. Telloni, *A Formative Path in Tertiary Education through GeoGebra Supporting the Students' Learning Assessment and Awareness*, The International Journal for Technology in Mathematics Education, vol. 26 n. 4 (2019) 190-202.
  68. L. Demeio and S. Lenci, *Dynamic analysis of a ball bouncing on a flexible beam*, Journal of Sound and Vibration, vol. 441 (2019) 152-164.

69. L. Demeio and S. Lenci, *An Impact Model of a Ball Bouncing on a Flexible Beam*, Meccanica, vol. 55 (2020) 2439–2450.
70. L. Barletti, P. Bordone, L. Demeio and E. Giovannini, *Wigner Function with Correlation Damping*, Phys. Rev. E vol. 104 (2021) 44112(1)-44112(12).
71. M. Coco, P. Bordone, L. Demeio and V. Romano, *Pauli principle and the Monte Carlo method for charge transport in graphene*, Phys. Rev. B, vol. 104 n. 20 (2021).
72. L. Demeio and S. Lenci, *Periodic Traveling Waves in a Taut Cable on a Bilinear Elastic Substrate*, Applied Mathematical Modelling, vol. 110 (2022) 603-617.
73. F. G. Alessio, L. Demeio and A. I. Telloni, *Promoting a Meaningful Learning of Double Integrals Through Routes of Digital Tasks*, Teaching Mathematics and Computer Science, vol. 20 n. 1 (2022) 28-56.
74. L. Demeio and S. Lenci, *Wave Propagation in a string Resting on a General Nonlinear Substrate*, SIAM Journal on Applied Mathematics, vol. 83 n. 1 (203) 24-48.
75. M. Petrini, L. Demeio and S. Lenci, *Attractors' Analysis and Bifurcation Diagrams for an Impacting Inverted Pendulum in the Presence of a Two-Terms Harmonic Excitation*, Journal of Computational and Nonlinear Dynamics **18**(10), 101004 (2023).