

1 Education

- M.Sc. 1976-1981 - Tbilisi State University, Theoretical Physics (Cum Laude)
Advisor: Dr. G.Z.Machabeli, Title of thesis: Waves in relativistic electron-positron plasmas in the pulsar magnetospheres
(Sh. Nuzubidze fellowship 1978-1981)
- Ph.D. 1986 - Abastumani Astrophysical Observatory
Department of Theoretical Astrophysics
and Institute of Space Research, Department of Plasma Physics
Advisor: Prof. J.G.Lominadze, Title of thesis: Nonlinear phenomena in plasma in strong magnetic fields

2 Employment History

2004 - present	Full Professor	Ben-Gurion University
1998-2004	Associate Professor	Ben-Gurion University
1997	Visiting Professor	IGPP/UCLA
1992-1998	Senior Lecturer	Ben-Gurion University
1990-1992	Lecturer	Ben-Gurion University
1984-1990	Researcher	Abastumani Astrophysical Observatory
1985-1986	Visiting Researcher	Institute of Space Research
1981-1984	Junior Researcher	Abastumani Astrophysical Observatory

3 Research Area

Astrophysics, Space Physics, Plasma Physics.

4 Publications

1. **Gedalin M.E.**, Machabeli G.Z., The role of relativistic electron-positron plasma turbulence in the prepulse formation of the NP 0531+21 pulsar radiospectrum, *Soviet Astron. Lett.*, 8, 80-82, 1982.
2. **Gedalin M.E.**, Machabeli G.Z., Propagation of oblique waves in a relativistic electron-positron plasma, *Astrophysics*, 19, 91-95, 1983.
3. **Gedalin M.E.**, Machabeli G.Z., Three-plasmon processes in a magnetized electron-positron plasma, *Soviet J. Plasma Physics*, 9, 592-596, 1983.
4. **Gedalin M.E.**, Krasnosel'skikh V.V., Lominadze J.G., Stability of bounded plasma systems, *Soviet J. Plasma Physics*, 11, 508-514, 1985.
5. **Gedalin M.E.**, Lominadze J.G., Stenflo S., Tsytovich V.N., Nonlinear wave conversion in electron-positron plasmas, *Astrophys. Space Sci.*, 108, 393-400, 1985.
6. **Gedalin M.E.**, Krasnosel'skikh V.V., Lominadze J.G., Nonlinear hot plasma motions across a strong magnetic field, *Adv.Space Res.*, 6, 57-61, 1986.
7. **Gedalin M.E.**, Nonlinear magnetosonic waves in a hot plasma, *Soviet J. Plasma Phys.*, 14, 346-349, 1988.
8. Balikhin M.A., **Gedalin M.E.**, Lominadze J.G., A possible mechanism of electron heating in the perpendicular collisionless shock front, *Adv. Space Res.*, 9, 135-138, 1988.
9. **Gedalin M.E.**, Lominadze J.G., Tsikarishvili E.G., Two-dimensional relativistic stellar wind, *Astrophys.Space Sci.*, 175, 291-310, 1991.

10. **Gedalin M.**, Relativistic hydrodynamics and thermodynamics of anisotropic plasmas , *Phys. Fluids*, B3, 1871-1875, 1991.
11. **Gedalin M.**, Maximum entropy principle for anisotropic plasma, *Phys. Fluids*, B3, 2149, 1991.
12. **Gedalin M.**, Peter W., Particle acceleration mechanisms in the auroral acceleration region, *IEEE Trans. Plasma Sci.*, 20, 740-744, 1992.
13. **Gedalin M.**, Eichler D., Nonlinear plasma mechanisms of pulsar eclipse in binary systems, *Astrophys. Journal*, 406, 629-637, 1993.
14. Balikhin M., **Gedalin M.** , Petrukovich A., New mechanism for electron heating in shocks, *Phys. Rev. Lett.*, 70, 1259-1262, 1993.
15. **Gedalin M.**, Nonlinear waves in two-fluid hydrodynamics, *Phys. Fluids*, B5, 2062-2075, 1993.
16. **Gedalin M.**, Linear waves in relativistic anisotropic MHD, *Phys. Rev.*, E47, 4354-4357, 1993.
17. Balikhin M., **Gedalin M.**, Kinematic mechanism for shock electron heating: comparison of theoretical results with experimental data, *Geophys. Res. Lett.*, 21, 841-844, 1994.
18. **Gedalin M.** Nonlinear waves in hot magnetized plasma, *Phys. Plasmas*, 1, 1159-1167, 1994.
19. Eichler D., **Gedalin M.**, Pulsar eclipse and companion mass loss, in *Millisecond Pulsars: A Decade of Surprises*, ed: A. Fruchter, M. Tavani and D. Backer, ASP Conference Series, vol. 72, pp.235-243, 1995.
20. **Gedalin M.**, Balikhin M., and Krassnoselskikh V., Electron heating in collisionless shocks, *Adv. Space Res.*, 15(8/9), 225-233, 1995.
21. Balikhin M., Krassnoselskikh V., and **Gedalin M.**, The scales in quasiperpendicular shocks, *Adv. Space Res.*, 15(8/9), 247-260, 1995.
22. Krassnoselskikh V., Balikhin M., Lembege B., and **Gedalin M.**, Electron dynamics in the front of the quasiperpendicular shocks, *Adv. Space Res.*, 15(8/9), 239-245, 1995.
23. **Gedalin M.**, Gedalin K., Balikhin M., Krasnoselskikh V.V., Demagnetization of electrons in the electromagnetic field structure, typical for oblique collisionless shock front, *J. Geophys. Res.*, 100, 9481-9488, 1995.
24. **Gedalin M.**, Oiberman I., Generally covariant relativistic anisotropic magnetohydrodynamics, *Phys. Rev.*, E51, 4901-4907, 1995.
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26. **Gedalin, M.**, and D. Zilbersher, Non-diagonal ion pressure in nearly-perpendicular collisionless shocks, *Geophys. Res. Lett.*, 22, 3279-3282, 1995.
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28. **Gedalin M.**, Ion reflection at the shock front revisited, *J. Geophys. Res.*, 101, 4871, 1996.
29. **Gedalin M.**, Noncoplanar magnetic field in the collisionless shock front, *J. Geophys. Res.*, 101, 11,153-11,156, 1996.
30. **Gedalin M.**, Covariant relativistic hydrodynamics of multispecies plasma and generalized Ohm's law, *Phys. Rev. Lett.*, 76, 3340, 1996.
31. **Gedalin M.**, Transmitted ions and ion heating in nearly-perpendicular low-Mach number shocks, *J. Geophys. Res.*, 101, 15,569-15,578, 1996.

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55. **M. Gedalin**, Two-stream instability of electrons in the shock front, *Geophys. Res. Lett.*, **26**, 1239-1242, 1999.
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58. E. Liverts, E. Griv, D. Eichler, and **M. Gedalin**, Local stability criterion for a self-gravitating gaseous disk of spiral galaxies, *Astrophys. Space Sci.*, **274**, 315-320, 2000.
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76. D. Eichler, **M. Gedalin**, and Yu. Lyubarsky, Coherent emission from magnetars, *Ap. J.*, 578, L121, 2002.
77. E. Griv, **M. Gedalin**, and C. Yuan, On the stability of Saturn's rings: A quasi-linear kinetic theory, *MNRAS*, 342, 1102, 2003.
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87. **M. Gedalin** and Y. Dzigal, Linear polarization of pulsar radio emission, *Astron. Astrophys.*, 439, 23-28, 2005.
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110. Y. Hobara, M. Balikhin, V. Krasnoselskikh, **M. Gedalin**, H. Yamagishi, Statistical study of the quasi-perpendicular shock ramp widths, *J. Geophys. Res.*, *115*, A11106, 2010, doi:10.1029/2010JA015659.
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