CURRICULUM VITÆ

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1 Personal Data

DATE OF BIRTH:	February 21, 1964
PLACE OF BIRTH:	Thessaloniki, Greece
NATIONALITY:	Greek
MARITAL STATUS:	Single
MILITARY SERVICE:	From November 1993 till February 1995 in the Greek Army

2 Education and Research Experience

I received my undergraduate education from the Aristotelion University of Thessaloniki, where I graduated in April 1986 with a Bachelor's degree in Physics. From June 1987, I was a graduate student at the Department of Physics at the University of Thessaloniki, where I obtained my Ph.D. in Physics, with "excellence".

In my thesis the problem of energetic particle (electrons and ions) acceleration by an ensemble of shock waves was addressed. Shock waves are generated and move randomly, inside a turbulent flow (e.g. jets and hot spots of extragalactic radio sources) or in an evolving and constantly changing active region on the Sun. The acceleration was based on the 'shock drift mechanism' using the adiabatic treatment. The transport and the radiation of the energetic particles in stochastic magnetic fields was also studied.

I developed an 1-D particle simulation code to calculate numerically the resulting energy distribution of the energetic particles, after their interaction with a number of shock waves. The energy distribution was also calculated analytically.

Two models for particle acceleration were studied, the first was an application to the solar flare problem (see publications 1, 3) and the second to the hot spots of extended extragalactic radio sources (see publication 2). My results show remarkable agreement with the observations.

I am currently working as a Research Associate at the Laboratory of Astronomy of the Physics Department of the University of Thessaloniki.

2.1 Research Interests and Collaborations

My research interests are related with problems on particle acceleration, transport and radiation in fully developed turbulent flows and stochastic magnetic fields (in collaboration with Prof. L. Vlahos). Recently I started working on the kinetic and diffusive approach of Hamiltonian systems and wave-particle interactions (in collaboration with Prof. H. Varvoglis). I am also interested in the study of the nature and the behaviour of collisionless shock waves via numerical simulations (in collaboration with Prof. M. Scholer). In collaboration with Prof. G. Anagnostopoulos, I have started working on the acceleration of energetic particles in the Heliosphere, using obervational data.

2.2 Titles

- B.Sc. in Physics: Physics Department, University of Thessaloniki (April 1986).
- Ph.D. in Physics: Physics Department, University of Thessaloniki, (December 1994).

2.3 Membership in Societies

- Hellenic Physical Society (1986)
- Hellenic Astronomical Society (HEL.A.S.) (1995)
- European Astronomical Society (E.A.S.) (1995)

2.4 Visits

- From February 1989 till July 1989, at the Max Planck Institut für Extraterrestrische Physik in Garching, Germany.
- From July 1991 till September 1991, at the Max Planck Institut für Extraterrestrische Physik in Garching, Germany.
- From 30th of September till 7th of October 1992, at the Observatoire de Paris, Section de Meudon in Paris, France, supported by the Greek-French collaboration program.
- From 6th till 31st of October 1996, at the Max Planck Institut für Extraterrestrische Physik in Garching, Germany.

2.5 Scholarships

- June 1988 - June 1994: Graduate Ph.D. Scholarship from the University of Thessaloniki
- February 1989 - July 1989: joint Scholarship from ERASMUS Program (through the European Astrophysics Doctoral Network) and the Max-Planck Institut für Extraterrestrische Physik.
- July 1991 - September 1991: Scholarship from the Max-Planck Institut für Extraterrestrische Physik.

2.6 Teaching and Computing Experience

During the first terms of the Academic years 1988-89, 1989-90, 1990-91 and 1991-92 I was tutoring “Plasma Physics” for the 4^{th} year students of the Physics Department of the University of Thessaloniki.

I have used the following types of computers/operating systems: UNIVAC 1107, IBM-370 VMS/CMS, VAX-9000, HP-9000 series 700/UNIX (at Univ. of Thessaloniki) and the GRAY - SUPERCOMPUTER (at Max - Planck - Institut für Plasma Physik).

2.7 Participation in Research Programs

1. “ *Coherent Radiation and Particle Acceleration in Natural Plasmas*”, EEC Science Project : ERB4002 PL 910093, (P.I. Prof. L. Vlahos), 1992 - 1995.

2. “*Generation of Electromagnetic and Gravitational Waves and Wave Particle Interactions in Astrophysics*”, Greek General Secretariat of Research and Technology, (P.I. Prof. N. Spyrou), 1992 - 1993.

3. “*Order and Chaos in conservative dynamical systems and applications to Astronomy, Celestial Mechanics and Atomic Physics*”, Greek General Secretariat of Research and Technology, (P.I. Prof. H. Varvoglis), 1996 - 1997.

4. “*The Dynamics of Complex Astrophysical Systems: Acceleration and Plasma Radiation Processes*”, Greek General Secretariat of Research and Technology, (P.I. Prof. L. Vlahos), 1996 - 1997.

5. “*Particle Acceleration and Transport in the Heliosphere*”, Greek General Secretariat of Research and Technology, (P.I. Prof. G. Anagnostopoulos), 1996-1997.

3 Conferences and Seminars

3.1 Participation in Conferences and Advanced Schools

1. “*International Conference of Non - Linear Dynamics and Chaos*”, Thessaloniki, Greece, 25 - 30 August 1986.

2. “*Summer School on Non - Linear Dynamics*”, Patras, Greece, 1 - 12 June 1987.

3. “*First Symposium: Solar and Space research in Greece*”, Athens, Greece, 1 - 3 June 1988.

4. • “*4^{th} CESRA Workshop on: fragmentation of energy release and radio emission from solar, stellar and magnetospheric plasmas*”, Ouranoupolis, Greece, 3 - 7 June 1991.

5. • “*European Astrophysics Doctoral Network: Predoctoral Astrophysics School IV* ”, Graz, Austria, 19 - 31 August 1991.

6. • “*Second European Workshop On Collisionless Shock Waves*”, Paris, France, 30 September - 2 October 1992.

7. • "*Second Symposium: Solar and Space research in Greece*", Xanthi, Greece, 26 - 29 April, 1993.

8. • "*European Astrophysics Doctoral Network: Predoctoral Astrophysics School VI* ", Thessaloniki, Greece, 13 - 23 July 1993.

9. "*International Workshop on Acceleration and Radiation Generation in Space and Laboratory Plasmas*", Kardamily, Greece, 29 August - 4 September, 1993

10. •"*NATO ASI on Solar and Astrophysical Magnetohydrodynamical Flows*", Heraklion, Crete, Greece, 11 - 22 June 1995.

11. •"*Second Astronomical Conference of The Hellenic Astronomical Society*", Thessaloniki, Greece, 29 June - 1 July 1995.

12. •"*JENAM-95: Progress in European Astrophysics*", Catania, Italy, 25 - 29 September 1995.

13. • "8^{th} *European Meeting on Solar Physics*", Thessaloniki, Greece, 13 - 18 May 1996.

14. "*Non - Linear Dynamics of Magnetized Fluids and Plasmas*", Pisa, Italy, 1 - 5 April 1997.

15. • "*Inetrnational Symposium on Solar - Terrestrial Coupling Processes*", Paros, Greece, 23 - 27 June 1997.

16. • "*JENAM-97: New Trends in Astronomy and Astrophysics*", Thessaloniki, Greece, 2 - 5 July 1997.

• Participation with presentation

3.2 Presentations and Seminars

1. "*An introduction to Plasma Kinetic Theory*", Univ. of Thessaloniki, January 1986.

2. "*Particle acceleration by shock waves*", Univ. of Thessaloniki, January 1989.

3. "*Astrophysical Jets*", Course of Graduate Seminars, Univ. of Thessaloniki, December 1990.

4. "*Particle acceleration by an ensemble of shock waves*", Max Planck Institut, July 1991.

5. "*On the noncoplanarity of the magnetic fields inside the collisionless shock waves*", Max Planck Institut, August 1991.

6. "*Particle acceleration by multiple shocks at the hot spots of extragalactic radio sources*", Univ. of Thessaloniki, May 1992.

7. "*Particle acceleration in Astrophysics by an ensemble of shock waves*", Univ. of Thessaloniki, May 1993.

8. "*An introduction to LaTeX*", Plasma Astrophysics Group Seminar, Univ. of Thessaloniki, October 1995.

9. "*Observations of high energy particles in Astrophysics*", Plasma Astrophysics Group Seminar, Univ. of Thessaloniki, September 1995.

10. "*Basic principals of FORTRAN* ", Plasma Astrophysics Group Seminar, Univ. of Thessaloniki, December 1995.

11. "*Particle acceleration by shock waves: Shock Drift - Adiabatic theory*, Univ. of Thrace, Xanthi, April 1997.

3.3 Conference and School Organization

I was a member of the Local Organizing Committee in:

- "*4th CESRA Workshop on: fragmentation of energy release and radio emission from solar, stellar and magnetospheric plasmas*", Ouranoupolis, Greece, 3 - 7 June 1991.
- "*European Astrophysics Doctoral Network: Predoctoral Astrophysics School VI*", Thessaloniki, Greece, 13 - 23 July 1993.
- "8th *European Meeting on Solar Physics*", Thessaloniki, Greece, 13 - 18 May 1996.

4 List of Publications

4.1 Publications in Refereed Journals

1. A. Anastasiadis and L. Vlahos: "*Particle acceleration inside a gas of shock waves*", *Astron. Astrophysics* **245**, 271, 1991.

2. A. Anastasiadis and L. Vlahos: "*Particle acceleration by multiple shocks at the hot spots of extragalactic radio sources*", *Astron. Astrophysics* **275**, 427, 1993.

3. A. Anastasiadis and L. Vlahos: "*Particle acceleration in an evolving active region by an ensemble of shock waves*", *Astroph. Journal* **428**, 819, 1994.

4. H. Varvoglis and A. Anastasiadis: "*Transport in Hamiltonian systems and its relationship to the Lyapunov time*", *Astron. Journal*, **111 (4)**, 1718, 1996.

5. A. Anastasiadis, K. Kleidis and H. Varvoglis: "*Kinetic description of particle interaction with a gavitational wave*", *General Relativ. Gravit.*, **29 (4)** , 499, 1997.

6. A. Anastasiadis, L. Vlahos and M. Georgoulis: "*Electron acceleration by random DC electric fields*", *Astroph. Journal*, 1997, *in press.*

7. K. Tsiganis, A. Anastasiadis and H. Varvoglis: "*Lyapunov numbers and stochastic layer widths in a perturbed pendulum*", *Phys. Lett. A.*, 1997, submitted.

4.2 Thesis

8. A. Anastasiadis: "*Comparison of Newtonian and Relativistic Cosmology*", Diploma thesis, University of Thessaloniki, December 1985 (in Greek).

9. A. Anastasiadis: "*Particle acceleration by randomly moving shock waves*" Ph.D thesis, University of Thessaloniki, December 1994 (in Greek).

4.3 Publications in Proceedings & Special Volumes

10. A. Anastasiadis and J. Daglis: "*A review of the ion acceleration by shock waves and turbulent flows*",in Greek Physical Review, November 1988 (in Greek).

11. A. Anastasiadis: "*Particle acceleration by multiple shock waves*", in the Second European Workshop on Collisionless Shock Waves, (Ed: B. Lembege), p.53, 1992.

12. A. Anastasiadis: "*Particle acceleration by a number of shock waves*", in the Second Symposium on Solar and Space research in Greece, (Ed: G. Anagnostopoulos), p.471, 1994 (in Greek).

13. A. Anastasiadis and L. Vlahos: "*The acceleration and transport of energetic particles inside an evolving active region*", in the Second Astronomical Conference of The Hellenic Astronomical Society, (Eds: M. E. Contadakis et al.), p.59, 1996.

14. C. Manolakou, A. Anastasiadis and L. Vlahos: "*Stochastic particle acceleration in a strongly turbulent flow of a jet*", in the Second Astronomical Conference of The Hellenic Astronomical Society, (Eds: M. E. Contadakis et al.), p.445, 1996.

4.4 Internal Reports

15. A. Anastasiadis: "*Stochastic particle acceleration in a turbulent flow of a jet*", March 1996.

16. A. Anastasiadis: "*Acceleration models for the abundances of heavy ions in impulsive solar flares*", October 1996.

17. A. Anastasiadis: "*The Fokker - Planck equation: Application to Hamiltonian Systems*", January 1997.

18. A. Anastasiadis: "*Shock Drift Acceleration: Adiabatic Theory*", June 1997.

4.5 Publications in Preparation

19. C. Manolakou, A. Anastasiadis and L. Vlahos: "*Stochastic particle acceleration in a strongly turbulent flow of a jet*", 1997 (to be submitted).

5 References

1. Prof. L. Vlahos,
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