

CURRICULUM VITAE

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STUDIES

Ph.D. in Mechanics of Materials. Supervisor: Professor E.C. Aifantis, Faculty of Engineering of Aristotle University of Thessaloniki (AUT), Department of Physics and Mathematics, Sector of Mechanics, Laboratory of Mechanics and Materials, (18/03/2004).

M.Sc. in Physics of Materials. Supervisor: Professor E.C. Aifantis, Faculty of Engineering of Aristotle University of Thessaloniki (AUT), Department of Physics and Mathematics, Sector of Mechanics, Laboratory of Mechanics and Materials, (14/4/1998).

Degree in Physics, School of Sciences (AUT), Dept. of Physics, (12/10/1995).

CURRENT POSITION

Lecturer / Department of Informatics / Ionian University

SELECTED PREVIOUS EMPLOYMENT

Research Program of European Union, "TMR Project: Spatio-Temporal Instabilities in Deformation and Fracture: Mechanics, Materials Science and Nonlinear Physics Aspects", contract FMRXCT960062. Supervisor: Professor A. Carpinteri, Politecnico di Torino, Italy.

Research Program of European Union, "REVISA: Reactor Vessel Integrity in Severe Accidents" contract FI4S-CT96-0024. Supervisor: Professor E.C. Aifantis, Laboratory of Mechanics and Materials, AUT, Greece.

RESEARCH INTEREST

- Stochastic dynamics (computer science / material science / earthquakes)
- Complex dynamics
- Multi-scale modeling
- Self-organization
- Population dynamics

PUBLICATIONS

1. Konstantinos Chorianopoulos, Markos Avlonitis, David A. Shamma "Social Pulses: Making Sense of Implicit User Activity within Social Web Videos through Pulse Modeling", *IEEE Transactions on Multimedia* (submitted)
2. M. Avlonitis and G.A. Papadopoulos, "On the role of b-values to earthquake forecasting: bridging macroscopic observations to source mechanical considerations", *Reviews in Geophysics*, (accepted).
3. E. Magkos, M. Avlonitis, P. Kotzanikolaou and Dr. M. Stefanidakis, "Towards Early Warning Against Internet Worms Based on Critical-Sized Networks", *Security and Communication Networks* (accepted)
4. M. Avlonitis, E. Magkos, M. Stefanidakis, and V. Chrissikopoulos. "Treating Scalability and Modeling Human Countermeasures Against Local Preference Worms via Gradient models". In: *Journal of Computer Virology*, Springer Paris, Vol. 5 (4), pp. 357-371, 2009.
5. Andreas Floros, Markos Avlonitis, Panayiotis Vlamos, "Frequency-domain stochastic error concealment for wireless audio applications", *Mobile Networks and Applications*, Volume 13, Issue 3-4, pp. 357-365, 2008
6. M. Avlonitis, I. Kordonis and S. Papavlassopoulos, "On an analytical estimation of characteristic lengths in pattern formation — application to fatigue", *Journal of Interdisciplinary Mathematics*, vol. 11, no. 4, pp. 451-460, 2008.
7. M. Poulos, S. Papavlasopoulos, G. Bokos, M. Avlonitis and N. Kanellopoulos, «Specific Selection of FFT Amplitudes from Audio Sports and News Broadcasting for Classification Purposes», *Journal of Graph Algorithms and Applications* <http://jgaa.info/> vol. 11, no. 1, pp. 277–307, 2007
8. M. Avlonitis, E. Magkos, M. Stefanidakis and V. Chrissikopoulos, "A spatial stochastic model for worm propagation: scale effects", *J. Comput. Virol.* 3:87–92, 2007
9. M. Avlonitis, M. Zaiser and E.C. Aifantis, "Nucleation and Non-Linear Strain Localization During Cyclic Plastic Deformation", *Journal of Mechanical Behavior of Materials*, **Vol. 18**, No 1, pp. 55-68, 2007.
10. M. Avlonitis and E.C. Aifantis, "Statistical and stochastic aspects of internal variables" *Journal of Mechanical Behavior of Materials*, **Vol. 18**, No 1, pp. 69-83, 2007.
11. A. Floros and M. Avlonitis, "A Novel Stochastic Process for Digital Audio Signals Dithering", *WSEAS Transactions on Signal Processing*, Issue 7, **Vol. 2**, ISSN: 1790-5022, pp. 956 – 961, July 2006.
12. J. Kioseoglou, G. P. Dimitrakopoulos, Ph. Komninou, Th. Karakostas, I. Konstantopoulos, M. Avlonitis and E. C. Aifantis, "Analysis of partial dislocations in wurtzite GaN using gradient elasticity", *Phys. stat. sol. (a)* **203**, 2161-2166, 2006.

- 13.** B. Bako, I. Groma, M. Avlonitis and E.C. Aifantis, "Incorporating the influence of the temperature into a mesoscopic continuum description of dislocation systems", *Mater. Science and Engineering A* **400-401**, 218-221, 2005.
- 14.** M. Avlonitis, T. Ioannidou, G. Frantziskonis and E.C. Aifantis, Statistical and stochastic aspects of gradient theory, *Journal of Mechanical Behavior of Materials*, **12**, 77-85, 2001.
- 15.** M. Avlonitis, M. Zaiser and E.C. Aifantis, Some exactly solvable models for the statistical evolution of internal variables during plastic deformation, *Probabilistic Engineering Mechanics*, **15**, 131-138, 2000.
- 16.** M. Zaiser, M. Avlonitis and E.C. Aifantis, Stochastic and deterministic aspects of strain localization during cyclic plastic deformation, *Acta Mater.*, **46**, 4143-4151, 1998.
- 17.** G.A. Papadopoulos and M. Avlonitis, "Foreshock Precursory Patterns Before Strong Mainshocks: Recent Cases from Greece, Italy and Tohoku (Japan)", AGU Fall meeting 2001, San Francisco, California, USA.
- 18.** Avlonitis Markos, "Multi-scale modeling of earthquake sources via stochastic differential constitutive equations", Continuing Challenges in Earthquake Dynamics: New Methods for Observing and Modelling a Multi-Scale System, 24-29 September 2011, Obergurgl, Austria.
- 19.** Avlonitis, M. and Tassos, S., "Towards realistic self-organized critical models for earthquakes", European Seismological Commission 2010, Montpellier, France.
- 20.** Markos I. Avlonitis, Adamantia G. Pateli and Ioannis A. Morfis – "A Stochastic Model Using Self-Organization to Explore the ICT Industry Evolution", 13th Panhellenic conference on Informatics, PCI, 10-12 September 2009, Corfu, Greece.
- 21.** Markos Avlonitis, Emmanouil Magkos, Michalis Stefanidakis, and Vassilis Chrissikopoulos – "A Novel Stochastic Approach for Modeling Random Scanning Worms", 13th Panhellenic Conference on Informatics, PCI, 10-12 September 2009, Corfu, Greece.
- 22.** Markos Avlonitis and Anastassia Pappa, "Towards a probabilistic approach for DAC exact reconstruction" 1st workshop on astrophysical winds and disks Similar phenomena in stars and quasars, Platamonas, Greece, September 3-8, 2009
- 23.** M. Avlonitis and G. Efremidis, "Modeling and Simulation of Self-Organized Criticality in Landslides", 2nd Chaotic Modeling and Simulation International Conference, 1-5 June 2009, Chania, Greece.
- 24.** M. Avlonitis, E. Magkos, M. Stefanidakis, and V. Chrissikopoulos. "Exploring Scalability and Fast Spreading of Local Preference Worms via Gradient Models". In: 17th EICAR Annual Conference, 3-6 May 2008, Laval, France, 2008.
- 25.** M. Avlonitis, K. Anagnostou and P. Vlamos, "On a probabilistic Method for exact spatial interpolation on sampling data: Application to olive fruit fly population data", International Advanced Workshop on Information and Communication Technologies for Sustainable Agro-Production and Environment (AWICTSAE), 2008.

26. M. Avlonitis and P. Vlamos, "On an analytical signal reconstruction in the presence of additive white noise", @ITIM Congress, Bari, 13-15 December, 2007
27. M. Avlonitis, P. Vlamos and K. Oikonomou, "A Space-Time Analytical Model for Energy Consumption in Wireless Sensor Networks", Medhocnet2007, Corfu, Greece, June 2007.
28. M. Avlonitis, D. Tragoudaras, M. Stefanidakis and C. Papavlasopoulos, "Stochastic Processes and Insect Outbreak Systems: Application to Olive Fruit Fly", on ENERGY, ENVIRONMENT, ECOSYSTEMS and SUSTAINABLE DEVELOPMENT (EEESD'07), Agios Nikolaos, Crete, Greece, July, 2007.
29. A. Floros, M. Avlonitis and P. Vlamos, «Stochastic Packet Reconstruction for Subjectively Improved Audio Delivery over WLANs», Mobimedia 2007.
30. A. Floros and M. Avlonitis, "Advances on Calculating Effective Dither for Audio Signals", Proceedings of the 10th WSEAS International Conference on SYSTEMS, July 10 – 12, Athens, Greece, pp. 614 – 618.
31. M. Avlonitis and E.C. Aifantis, On the derivation of a new class of Fokker Planck equations for plastic deformation, P. D. Spanos, ed., pp. 407-409, Balkema, Rotterdam 1999.
32. M. Avlonitis, K. Kalaitzidou, M. Zaiser and E.C. Aifantis, Reaction-Diffusion equations for material's defect patterning", Proceedings of the 2nd Pan-Hellenic Conference of Chemical Engineering, Thessaloniki, 1999.
33. M. Avlonitis, M. Zaiser and E.C. Aifantis, A stochastic approach to microstructural evolution during plastic deformation and its application to texture, in: *Proc. of the 5th National Congress on Mechanics*, 2, P. Theocaris, D.I. Fotiadis and C.V. Massalas, eds., pp. 907-914, The University of Ioannina, 1998.
34. M. Zaiser, M. Avlonitis and E.C. Aifantis, Deterministic and stochastic aspects of strain localization in the fatigue of metals, in: *Proc. of the NATO-PROBAMAT 21th Century Workshop*, Eds. G. Frantziskonis, Kluwer Academic Publishers, pp. 557-572, Amsterdam 1997.
35. M. Avlonitis, S. Kektsidis, and G. Kanellis, Theoretical study of diffusion and ionic conduction in monocrystals, in: *Proc. of the 13th National Conference on Solid State Physics*, pp. 667-670, Thessaloniki 1997.
36. M. Avlonitis, M. Zaiser, G. Kanellis and E.C. Aifantis, Stochastic approach in the description of texture during plastic deformation, in: *Proc. of the 13th National Conference on Solid State Physics*, pp. 457-460, Thessaloniki 1997.