



Curriculum Vitae

PERSONAL DATA

Name : Yiannis Contoyiannis

Date of birth: 26-11-1956

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EDUCATION

- Department of Physics of the Aristotle University of Thessaloniki. (April 1981).
- MSc in Nuclear and Particle Physics. Department of Physics, University of Athens (January 1998).
- PhD in Physics of Critical phenomena with application to high energies. Department of Physics, University of Athens (June 2001). Thesis title: "The Theory of Critical Fluctuations in Quarks Matter".

PROFESSIONAL EXPERIENCE

- From 1-3-2004 to 31-8-2006: Postdoctoral research in projects PYTHAGORAS Program (EPEAEK). Employer: University of Athens, Physics Department. Research field: "Experimental data Analysis of heavy ions collisions".
- From 1-3-2005 to 30-12-2006: Postdoctoral research in projects PYTHAGORAS II Program (EPEAEK). Employer: University of Athens, Physics Department. Research fields: (a) Mechanisms of self-organization in lattice models. (b) Production of mathematical maps describing the removal from the critical point (c) Critical behaviors in diode p-n.

- From 1-09-2013 to 31-12-2014: Postdoctoral research in the ARCHIMIDES III (NSRF) project. Employer: TEI of Athens. Research field: Analysis of pre-seismic E/M recordings.
- From 12-10-2017 to 1-3-2018 : Member of EDIP for laboratory, research and teaching in Department of Electronics Engineering, Technological Education Institute (TEI) of Piraeus.
- From 2-3-2018 to 30-6-2022 : Member of EDIP for Laboratory, research and teaching in Department of Electrical and Electronics Engineering University of West Attica.
- Present : Visiting Researcher in Department of Electrical and Electronics Engineering University of West Attica.

TEACHING-LABORATORY EXPERIENCE

- Academic year 2002-2003: Scientific associate (at assistant professor level), Automation Department, TEI of Chalkida. Teaching subject: Electromagnetism – Optics.
- Academic years 2003-2004 to 2009-2010 consecutively, Scientific associate (Assistant Professor level), Mechanical Engineering Department, Technological Educational Institute of Chalkida. Teaching subject: Mechanics – Thermodynamics.
- Academic years 2004-2005 to 2006-2007 consecutively, Scientific associate (Assistant Professor level), Electrology Department, TEI of Chalkida. Teaching subject: Mechanics – Electricity.
- Academic years 1997-1998 to 2000-2001 consecutively, Laboratory Associate, Department of Physics, University of Athens. Teaching subject: Physics I, Physics II.
- Academic year 2018-19 in Postgraduate program of University of West Attica. Teaching object: Theory of complex systems.
- Academic year 2017-2018: Laboratory Associate, TEI Piraeus. Teaching object : Laboratory of Electronic Physics and Laboratory Control systems.
- Academic year 2018-19: Laboratory Associate , University of West Attica. Teaching object: Laboratories Physics I.
- Academic years 2019-2020, 2020-2021, 2021-2022. Teaching undergraduate object: Mathematical Analysis I, Mathematical Analysis II, Differential equations-Transformations.
- November and December of the academic years 2005-2006 to 2009-2010, Educator at Lamia PEK for Natural Science teachers.

RESEARCH WORK:

The Research work is reflected in 76 publications, of which 54 are articles in international with referees scientific journals, 2 book chapters and 20 articles in conference proceedings. The average impact factor of international with referees scientific journals is 3.41. The impact factor of the research work is h-index=20 in the Scopus database in November 2022. The research work is divided into 12 thematic units, as shown below.

1. Thematic unit of Very High Energy Physics.

A. *International Scientific Journals with referees*

1. Strangeness in chiral QCD phase transition, Antoniou, N.G., Contoyiannis, Y.F., Diakonou, F.K., Ktorides, C.N., Lahanas, M., *Journal of Physics G: Nuclear and Particle Physics*, 1997, 23(12), pp. 1953–1960. impact factor 3.045
2. Fractals at $T = T_c$ due to Instantonlike Configurations, Antoniou, N.G., Contoyiannis, Y.F., Diakonou, F.K., Papadopoulos, C.G., *Physical Review Letters*, 1998, 81(20), pp. 4289–4292. Impact factor 9.161
3. The critical point in QCD and pion fluctuations in heavy ion collisions, Antoniou, N.G., Contoyiannis, Y.F., Diakonou, F.K., *Nuclear Physics A*, 1999, 661(1-4), pp. 399–402. Impact factor 1.683
4. Pion production from a critical QCD phase, Antoniou, N.G., Contoyiannis, Y.F., Diakonou, F.K., Karanikas, A.I., Ktorides, C.N., *Nuclear Physics A*, 2001, 693(3-4), pp. 799–824. impact factor 1.683
5. Critical QCD in nuclear collisions, Antoniou, N.G., Contoyiannis, Y.F., Diakonou, F.K., Mavromanolakis, G., *Nuclear Physics A*, 2005, 761(1-2), pp. 149–161 impact factor 1.683

B. *Conference Journals with referees*

1. “Fractal clusters and intermittency in relativistic heavy ion collisions”. N. Antoniou, Y. Contoyiannis and F. Diakonou. *Procc. International Symposium on Multiparticle Dynamics 98*; World Scientific (1999) 110.
2. “Instantons and fractals in critical systems”. N. Antoniou, Y. Contoyiannis, F. Diakonou. *Procc. Correlations and Fluctuations 98* ; World Scientific (1999) 463.
3. “Probing the QCD critical point in nuclear collisions” N. Antoniou, Y. Contoyiannis, F. Diakonou, G. Georgopoulos, A. Petridis and M. Vassiliou. *Procc. XXIX International Symposium on Multiparticle Dynamics. USA 8-13 August 1999*; World Scientific (2000).
4. The isothermal critical exponent of the 3–D Ising universality class*. NG ANTONIOU, YF CONTOYIANNIS, FK DIAKONOS, *Procc, Correlations & Fluctuations in QCD: Proceedings of the 10th International Workshop on Multiparticle Production, Crete, Greece, 8-15 June 2002*.
5. . “Prospects of detecting the QCD critical point”. N. Antoniou, Y. Contoyiannis, F. Diakonou and A. Kapoyannis. *Procc. On the 10th International Workshop on Correlations and Fluctuations in QCD. Crete, Greece, 8-15 June 2002. World Scientific (2003) 190*.

2. Thematic unit of Theory and Methods of Statistical Physics of critical phenomena.

A. International Scientific Journals with referees

1. Fractal geometry of critical systems, Antoniou, N.G., Contoyiannis, Y.F., Diakonos, F.K., Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics, 2000, 62(3 A), pp. 3125–3134. impact factor 2.529
2. Criticality and intermittency in the order parameter space
Contoyiannis, Y.F., Diakonos, F.K.
Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 268(4-6), pp. 286–292. Impact factor 2.712
3. Intermittent Dynamics of Critical Fluctuations
Contoyiannis, Y.F., Diakonos, F.K., Malakis, A.
Physical Review Letters, 2002, 89(3). Impact factor 9.161
4. Unimodal maps and order parameter fluctuations in the critical region
Contoyiannis, Y.F., Diakonos, F.K.
Physical Review E - Statistical, Nonlinear, and Soft Matter Physics, 2007, 76(3), 031138. . impact factor 2.529
5. Stickiness in the order parameter time-series as a signature of criticality
Contoyiannis, Y.F., Potirakis, S.M., Diakonos, F.K.
Physica A: Statistical Mechanics and its Applications, 2020, 544, 123508. . impact factor 3.263

B. Conference Journals with referees

1. “The dynamical analogon of 3d critical systems at equilibrium”.
Y.Contoyiannis and F. Diakonos. Procc. International Workshop on Condensed Matter Theories. Ithaca, Greece 17-23 June 1999. Nova Science Publishers. Inc. Vol 15, (2000) 117.

3. Thematic unit of analysis of preseismic time series with the method of critical fluctuations

A. International Scientific Journals with referees

1. Intermittent dynamics of critical pre-seismic electromagnetic fluctuations
Contoyiannis, Y.F., Diakonos, F.K., Kapiris, P.G., Peratzakis, A.S., Eftaxias, K.A.
Physics and Chemistry of the Earth, 2004, 29(4-9), pp. 397–408 impact factor 2.712
2. Monitoring of a preseismic phase from its electromagnetic precursors
Contoyiannis, Y.F., Kapiris, P.G., Eftaxias, K.A.

Physical Review E - Statistical, Nonlinear, and Soft Matter Physics, 2005, 71(6), 066123. . impact factor 2.529

3. Unfolding the procedure of characterizing recorded ultra low frequency, kHz and MHz electromagnetic anomalies prior to the L'Aquila earthquake as pre-seismic ones - Part 1

Eftaxias, K., Athanasopoulou, L., Balasis, G., ...Antonopoulos, G., Nomicos, C. Natural Hazards and Earth System Science, 2009, 9(6), pp. 1953–1971 . Impact factor 4.345

4. Unfolding the procedure of characterizing recorded ultra low frequency, kHz and MHz electromagnetic anomalies prior to the L'Aquila earthquake as pre-seismic ones - Part 2

Eftaxias, K., Balasis, G., Contoyiannis, Y., ...Antonopoulos, G., Nomicos, C. Natural Hazards and Earth System Science, 2010, 10(2), pp. 275–294 . Impact factor 4.345

5. Evidence of fractional-Brownian-motion-type asperity model for earthquake generation in candidate pre-seismic electromagnetic emissions.

Eftaxias, K., Contoyiannis, Y., Balasis, G., ...Koulouras, G., Nomicos, C. Natural Hazards and Earth System Science, 2008, 8(4), pp. 657–669 . Impact factor 4.345

6. Recent field observations indicating an earth system in critical condition before the occurrence of a significant earthquake

Potirakis, S.M., Contoyiannis, Y., Eftaxias, K., Koulouras, G., Nomicos, C. IEEE Geoscience and Remote Sensing Letters, 2015, 12(3), pp. 631–635, 2354374 impact factor 3.966

7. Intermittent criticality revealed in ULF magnetic fields prior to the 11 March 2011 Tohoku earthquake (MW=9)

Contoyiannis, Y., Potirakis, S.M., Eftaxias, K., Hayakawa, M., Schekotov, A. Physica A: Statistical Mechanics and its Applications, 2016, 452, pp. 19–28 . impact factor 3.263

8. Critical features in electromagnetic anomalies detected prior to the L'Aquila earthquake

Contoyiannis, Y.F., Nomicos, C., Kopanas, J., ...Contoyianni, L., Eftaxias, K. Physica A: Statistical Mechanics and its Applications, 2010, 389(3), pp. 499–508 . impact factor 3.263

9. Recent seismic activity at Cephalonia (Greece): A study through candidate electromagnetic precursors in terms of non-linear dynamics

Potirakis, S.M., Contoyiannis, Y., Melis, N.S., ...Nomicos, C., Eftaxias, K. Nonlinear Processes in Geophysics, 2016, 23(4), pp. 223–24 impact factor 1.74

10. Four-stage model of earthquake generation in terms of fracture-induced electromagnetic emissions: A review

Eftaxias, K., Potirakis, S.M., Contoyiannis, Y.

Complexity of Seismic Time Series: Measurement and Application, 2018, pp. 437–502
Book

11. Analysis of the ultra-low frequency magnetic field fluctuations prior to the 2016 Kumamoto (Japan) earthquakes in terms of the method of critical fluctuations
Potirakis, S.M., Contoyiannis, Y., Schekotov, A., Asano, T., Hayakawa, M.
Physica A: Statistical Mechanics and its Applications, 2019, 514, pp. 563–572 .
impact factor 3.263

12. On possible electromagnetic precursors to a significant earthquake ($M_w = 6.3$) occurred in Lesvos (Greece) on 12 June 2017
Potirakis, S.M., Schekotov, A., Contoyiannis, Y., ...Eftaxias, K., Nomicos, C.
Entropy, 2019, 21(3), 241 impac factor 2.524

13. Evidence of critical dynamics in various electromagnetic precursors
Potirakis, S.M., Contoyiannis, Y., Schekotov, A., Eftaxias, K., Hayakawa, M.
European Physical Journal: Special Topics, 2021, 230(1), pp. 151–177 impact factor
2.707

14. Statistical and criticality analysis of the lower ionosphere prior to the 30 october 2020 samos (Greece) earthquake ($m6.9$), based on vlf electromagnetic propagation data as recorded by a new vlf/lf receiver installed in Athens (Greece)
Politis, D.Z., Potirakis, S.M., Contoyiannis, Y.F., ...Sasmal, S., Hayakawa, M.
Entropy, 2021, 23(6), 676 impac factor 2.524

15. Intermittency-induced criticality in the lower ionosphere prior to the 2016 Kumamoto earthquakes as embedded in the VLF propagation data observed at multiple stations
Potirakis, S.M., Contoyiannis, Y., Asano, T., Hayakawa, M.
Tectonophysics, 2018, 722, pp. 422–431 impact factor 3.933

16. Lévy and Gauss statistics in the preparation of an earthquake
Potirakis, S.M., Contoyiannis, Y., Eftaxias, K. Physica A: Statistical Mechanics and its Applications, 2019, 528, 121360 . impact factor 3.263

17. Tsallis and Levy statistics in the preparation of an earthquake
Contoyiannis, Y.F., Eftaxias, K.
Nonlinear Processes in Geophysics, 2008, 15(3), pp. 379–388. Impact factor 1.74

B. *Conference Journals with referees*

1. S.M. Potirakis, Y. Contoyiannis, T. Asano, A. Schekotov, M. Hayakawa, K. Eftaxias, Compatibility of different electro- magnetic precursors in terms of critical dynamics, EMSEV 2018, Potenza Italy, 17- 21 September 2018.

2. . “Recent fracture induced electromagnetic field measurements revealing an Earth system in second order phase transition before the occurrence of significant earthquakes”. SM Potirakis, Y Contoyiannis, J Kopanas, G Antonopoulos, C Nomicos, EGU General Assembly Conference Abstracts 17 (2015)

3. S. M. Potirakis, Y. Contoyiannis, J. Kopanas, A. Kalimeris, G. Antonopoulos, A. Peratzakis, K. Eftaxias, and C. Nomicos. "Fracture induced electromagnetic emissions: extending laboratory findings by observations at the geophysical scale", in Proceedings of the European Geosciences Union General Assembly 2014, Vienna Austria 27 April - 02 May 2014, Geophysical Research Abstracts Vol. 16, EGU2014, 4400, 2014. C52.
4. "Statistical similarities of pre-earthquake electromagnetic emissions to biological and economic extreme events". SM Potirakis, Y Contoyiannis, J Kopanas, A Kalimeris, G Antonopoulos, ..EGU General Assembly Conference Abstracts 16 (2014).
5. Contoyiannis, Y., and K. Eftaxias, Is the evolution towards global failure irreversible after the appearance of distinguishing features in the preseismic EM time series? Geophysical Research Abstracts, Vol. 9, 04824, 2007 SRef ID: 1607 7962/gra/EGU2007 A 04824, General Assembly of the European Geosciences Union, Vienna, Austria, April 2012.
6. "Are there credible earthquake electromagnetic precursors?" K Eftaxias, G Balasis, Y Contoyiannis, M Kalimeri, C Papadimitriou, ... EGU General Assembly Conference Abstracts 12, 12282 (2010).
7. Y. Contoyiannis, L. Contoyianni, J. Kopanas, G. Antonopoulos, and K. Eftaxias, Critical features in electromagnetic anomalies detected prior to the L'Aquila earthquake, Geophysical Research Abstracts Vol. 12, EGU2010 12405 2, 2010, EGU General Assembly, Vienna Austria, 2010.
8. "Description of pre-seismic MHz electromagnetic in analogy with a thermal second order phase transition: the reproducibility of results" Y Contoyiannis, J Kopanas, G Antonopoulos, L Contoyianni, K Eftaxias EGU General Assembly Conference Abstracts 11, 2435 (2009)
9. Y. Contoyiannis, L. Contoyianni, J. Kopanas, Eftaxias, K. Contoyiannis, Y.; Balasis, G.; Kalimeri, M.; Kopanas, J.; Antonopoulos, G., Peratzakis, A., Nomicos, C., Evidence of fractional Brownian motion type asperity model for earthquake generation in candidate preseismic electromagnetic emissions, Geophysical Research Abstracts, Vol. 10, EGU2008 A, 01564, 2008, SRef ID: 1607 962/gra/EGU2008 A 01564, EGU General Assembly 2008
10. Eftaxias, K., Y. Contoyiannis, K. Karamanos, M. Kalimeri, G. Balasis, J. Kopanas, G. Antonopoulos, and K. D. Nomicos, Evidence of a self affine asperity fault model in pre seismic electromagnetic activity, Geophysical Research Abstracts, Vol. 9, 04829, 2007 SRef ID: 1607 7962/gra/EGU2007 A 04829, General Assembly of the European Geosciences Union, Vienna, Austria, April 2007.

11. Contoyiannis, Y., P. Kapiris and K.A. Eftaxias, Is the evolution towards global failure unavoidable after the appearance of distinguishing features in the pre seismic EM time series? IV International Workshop MEEMSV 2004, France.

12. S.M. Potirakis, P. Kasnesis, C.Z. Patrikakis, Y. Contoyiannis, N. A. Tatlas, S.A. Mitilineos, T. Asano, M. Hayakawa, A decision making system using Deep Learning for earthquake prediction by means of electromagnetic precursors, EMSEV. 2018, Potenza Italy, 17- 21 September 2018.

4.Thematic unit of critical phenomena in Biological material.

A. International Scientific Journals with referees

1. Criticality in the relaxation phase of a spontaneously contracting atria isolated from a Frog's heart

Contoyiannis, Y.F., Diakonos, F.K., Papaefthimiou, C., Theophilidis, G.
Physical Review Letters, 2004, 93(9), 098101. Impact factor 9.161

2. Traits of criticality in membrane potential fluctuations of pyramidal neurons in the CA1 region of rat hippocampus

Kosmidis, E.K., Contoyiannis, Y.F., Papatheodoropoulos, C., Diakonos, F.K.
European Journal of Neuroscience, 2018, 48(6), pp. 2343–2353 impact factor 3.386

3. The Earth as a living planet: Human-type diseases in the earthquake preparation process

Contoyiannis, Y.F., Potirakis, S.M., Eftaxias, K.
Natural Hazards and Earth System Science, 2013, 13(1), pp. 125–139. Impact factor 4.345

4. Can high-frequency ECG fluctuations differentiate between healthy and myocardial infarction cases?

Yiannis Contoyiannis, Fotios K Diakonos, Myron Kampitakis, Stelios M Potirakis
Biomedical Engineering Advances. Vol2. Pg 100011. 2021/12/1.

5. Analysis of Electroencephalography (EEG) Signals Based on the Haar Wavelet Transformation.

Y Contoyiannis, P Papadopoulos, SM Potirakis, M Kampitakis, NL Matiadou, E Kosmidis.
Approximation and Computation in Science and Engineering. Springer, Cham. Pg 157-166, 2022. Book.

5. Thematic unit of critical phenomena in Electronic Physics.

A. . International Scientific Journals with referees

1. Intermittency-induced criticality in a resistor-inductor-diode circuit

Potirakis, S.M., Contoyiannis, Y., Diakonos, F.K., Hantias, M.P.
Physical Review E, 2017, 95(4), 0422. impact factor 2.529

2. Intermittency-induced criticality in the random telegraph noise of nanoscale UTBB FD-SOI MOSFETs

Contoyiannis, Y., Potirakis, S.M., Stavrinos, S.G., Tassis, D., Theodorou, C.G.

Microelectronic Engineering, 2019, 216, 111027 impact factor 2.722

3. On the Chaotic nature of Random Telegraph Noise in unipolar RRAM memristor devices.

Stavros G. Stavrinos, Michael P. Haniyas, Mireia B. Gonzalez, Francesca Campabadal, Yiannis Contoyiannis, Stelios M. Potirakis, Mohamad Moner Al Chawa, Carol de Benito, Ronald Tetzlaff, Rodrigo Picos, Leon O. Chua.

Chaos, Solitons and Fractals. Impact factor 5.944.

B. Conference Journals with referees

1. Y. Contoyiannis, S.M. Potirakis, S.G. Stavrinos, M.P. Haniyas, D.H. Tassis, Intermittency induced criticality in the random telegraph noise of nanoscale UTBB FD SOI MOSFETs, 7th International Conference "Micro&Nano 2018", 5 - 7 November 2018, Aristotle University of Thessaloniki.

6. Thematic unit of diffusion phenomena and Pandemics

A. International Scientific Journals with referees

1. Abrupt transition in a sandpile model

Contoyiannis, Y.F., Diakonou, F.K.

Physical Review E - Statistical, Nonlinear, and Soft Matter Physics, 2006, 73(3), 031303. impact factor 2.529

2. A universal physics-based model describing COVID-19 dynamics in Europe

Contoyiannis, Y., Stavrinos, S.G., Haniyas, M.P., ...Picos, R., Potirakis, S.M.

International Journal of Environmental Research and Public Health, 2020, 17(18), pp. 1–19, impact factor 3.364

3. Criticality in epidemic spread: An application in the case of COVID19 infected population

Contoyiannis, Y., Stavrinos, S.G., Haniyas, M.P., ...Potirakis, S.M., Kosmidis, E.K.

Chaos, 2021, 31(4), 043109 impact factor 3.642

4. Application of the method of parallel trajectories on modeling the dynamics of COVID-19 third wave

Contoyiannis, Y., Stavrinos, S.G., Haniyas, M.P., ...Potirakis, S.M., Kosmidis, E.

Chaos, 2022, 32(1), 011103 impact factor 3.642

7. Thematic unit of Econophysics

A. International Scientific Journals with referees

1. “Intermittency in Stock Market Dynamics” A.Ozun, Y.Contoyiannis, F.Diakonos, L.Magafas and M.Hanias. Journal of Trading. Summer 2014, Vol 9, No 3, pp26-33.
2. The Study Of Capital Decline On The Number Of Successive Transactions In The Real Economy Y Contoyiannis, M Hanias, L Magafas, ANNUAL OF SOFIA UNIVERSITY 17 (2019).
3. Critical dynamics related to a recent Bitcoin crash. Pavlos I. Zitis , Yiannis Contoyiannis , Stelios M. Potirakis , International Review of Financial Analysis 84 (2022) 102368. . Impact factor 8.235

8. Thematic unit of Mathematical Physics

A. International Scientific Journals with referees

1. Wavelet-based detection of scaling behavior in noisy experimental data Contoyiannis, Y.F., Potirakis, S.M., Diakonos, F.K. Physical Review E, 2020, 101(5), 052104 impact factor 2.529
2. Engendering self-similarity in boson field by a natural feedback process Contoyiannis, Y., Papadopoulos, P., Kampitakis, M., ...Hanias, M.P., Potirakis, S.M. Physica Scripta, 2021, 96(12), 125211. Impact factor 2.487
3. ϕ 4 Solitons in Kirchhoff Wave Equation Contoyiannis, Y., Papadopoulos, P., Kampitakis, M., Potirakis, S.M., Matiadou, N.L. Springer Optimization and Its Applications, 2021, 173, pp. 71–80 . Book
4. A new symbolic time series analysis method based on time-to-space mapping, through a symmetric magnetic field, quantized by prime numbers Authors: Yiannis Contoyiannis, Pericles Papadopoulos, Niki-Lina Matiadou, Stelios M. Potirakis, Symmetry 2022, 14(11), 2366. Impact factor 3.114

9. Thematic unit of Magnetic Storms

A. International Scientific Journals with referees

1. Observation of Intermittency-Induced Critical Dynamics in Geomagnetic Field Time Series Prior to the Intense Magnetic Storms of March, June, and December 2015. Balasis, G., Daglis, I.A., Contoyiannis, Y., ...Anastasiadis, A., Kontoes, C.

Journal of Geophysical Research: Space Physics, 2018, 123(6), pp. 4594–4613 impact factor 2.811

B. *Conference Journals with referees*

1 . “Intermittent criticality revealed in the ENIGMA magnetometer array time series prior to the strongest magnetic storms of the present solar cycle. G Balasis, IA Daglis, Y Contoyiannis, SM Potirakis, C Papadimitriou, ... EGU General Assembly Conference Abstracts 19, 8899 2017.

10. **Thematic unit of Neural networks**

A. *International Scientific Journals with referees*

1. Criticality in a hybrid spin model with Fermi–Dirac statistics
Contoyiannis, Y.F., Potirakis, S.M., Diakonou, F.K., Kosmidis, E.K.
Physica A: Statistical Mechanics and its Applications, 2021, 577, 126073 impact factor 3.263

2. A hybrid artificial neural network for the generation of critical fluctuations and inter -spike intervals. Yiannis F. Contoyiannis , Efstratios K. Kosmidis , Fotios K. Diakonou , Myron Kampitakis , Stelios M. Potirakis . Chaos, Solitons and Fractals. Impact factor 5.944.

11. **Thematic unit of Magnetic fields**

A. . *International Scientific Journals with referees*

1. Magnetic field fluctuations in an array of randomly directed circular currents
Anagiannis, V.D., Contoyiannis, Y.F., Diakonou, F.K.
European Physical Journal B, 2013, 86(11), 460. Impact factor 1.5

2. Diffraction-like stratified magnetic field in a device of circular rings
Contoyiannis, Y., Potirakis, S.M., Papadopoulos, P., Kampitakis, M.
Journal of Applied Physics, 2021, 129(1), 014501. Impact factor 2.546

12. **Thematic unit of Symmetry Breaking phenomena**

A. . *International Scientific Journals with referees*

1. Post-spontaneous-symmetry-breaking power-laws after a very strong earthquake: Indication for the preparation of a new strong earthquake or not?
Potirakis, S.M., Contoyiannis, Y., Eftaxias, K., Melis, N.S., Nomicos, C.

Physica A: Statistical Mechanics and its Applications, 2022, 589, 126607 . impact factor 3.263

2. Tachyons and solitons in spontaneous symmetry breaking in the frame of field theory

Contoyiannis, Y., Haniyas, M.P., Papadopoulos, P., ...Potirakis, S.M., Balasis, G. Symmetry, 2021, 13(8), 1358 impact factor 2.713

3. Spontaneous symmetry breaking in the phase space

Contoyiannis, Y., Stavrinides, S.G., Kampitakis, M., ...Potirakis, S.M., Papadopoulos, P. Physica Scripta, 2021, 96(7), 075204 Impact factor 2.487

4. Signatures of the symmetry breaking phenomenon in pre-seismic electromagnetic emissions

Contoyiannis, Y., Potirakis, S.M.

Journal of Statistical Mechanics: Theory and Experiment, 2018, 2018(8), 083208. Impact factor 2.232

5. Tricritical crossover in earthquake preparation by analyzing preseismic electromagnetic emissions

Contoyiannis, Y., Potirakis, S.M., Eftaxias, K., Contoyianni, L.

Journal of Geodynamics, 2015, 84, pp. 40–54. Impact factor 2.345

SCIENTIFIC LECTURES-CONFERENCES-SESSIONS

1) Lecture "Introduction to Theory and Wavelet Applications", Nuclear Physics Lecture Room, University Of Athens. 13/1/1997.

2) Lecture "Critical fluctuations like- instanton in heavy ions relativity processes", Nuclear Physics Lecture Room, University Of Athens. 13/1/1998.

3) Lecture "Fractals produced by instantons in thermal phase transition". 11th Summer School/Hellenic Congress of Nonlinear Dynamics and Chaos. Leivada July 1998.

4) Lecture "Chaotic maps and critical systems". 12th Summer School / Hellenic Conference of non-linear dynamics Complexity and chaos. Patras, July 1999.

5) Poster "Can unimodal Chaotic Maps describe critical systems?", International Workshop on Condensed Matter Theories. Ithaca, Greece, June 17-23, 1999.

6) Lecture "Instantons in Quantum Chromodynamics", Nuclear Physics Lecture Room, University Of Athens. 6/11/2000.

7) Lecture "Fractality and intermittency in critical systems", 13th Summer School/Hellenic Conference of non-linear dynamics Complexity and chaos. Chania, July 2000.

8) Lecture "Critical Dynamics, Effective Action and Intermittency in the 3d-Ising Model", 14th Summer School / Hellenic Congress of Nonlinear Dynamics Complexity and Chaos. Patras, July 2001.

9) Lecture "Isoscalar Condensate Structures at the Critical Point of the QCD", Nuclear Physics Lecture Room, University Of Athens. 13/12/2002.

- 10) Poster "Fingerprints of Intermittent and Critical Behavior of Earthquake in Electromagnetic Anomalies", 27th General Assembly of the European Geophysical Society. Nice, France, April 21-28, 2002.
- 11) Lecture "The method of critical fluctuations in pre-seismic processes". Summer School/Hellenic Conference of non-linear dynamics Complexity and Chaos, Chalkida, July 2003.
- 12) Lecture "The Method of critical fluctuations", Athens, Physics Department, 23/2/2005.
- 13) Poster "Criticality in Neurons", Kosmidis E.K., Contoyiannis Y.F. Papatheodoropoulos C., Diakonos F.K., Theophilidis G., Panhellenic Congress of Neurosciences, Crete, September 2006.
- 14) Poster "Tsallis and Levy statistics in the preparation of an earthquake". Scientific Conference of the Faculty of Physics, Athens, 26 May 2008.
- 15) Poster "Criticality in single neuron membrane potential fluctuations". Kosmidis EK, Contoyiannis YF, Papatheodoropoulos C, Diakonos FK. International Congress of Neurosciences FFRM 2015, Thessaloniki 7-10-2015 to 10-10-2015.

Reviewer in Journals-Conferences

- Reviewer at the International Scientific Journal GRSL (Geoscience and Remote Sensing Letters) in paper titled "Seismic data denoising using adaptive empirical wavelet transform".
- Referee at the 2nd International Conference for Innovation in Education, Larisa, 21-23 October 2016.
- Referee within the framework of the Institution of Excellence at the program "Education and Lifelong Learning", Ministry of Education, Academic year 2012-13.

AUTHORING

- PHYSICS II "Electromagnetic theory- Wave-Optics". TEI of Chalkis 2002. Educational notes
- PHYSICS II "Mechanics". TEI of Chalkida 2003. Educational notes
- PHYSICS "Topics-Answers". TEI of Chalkida 2008. Educational notes
- Book: Complexity of seismic time series . ISBN:978-12-813138-1. "Four-stage model of earthquake generation in terms of fracture-induced electromagnetic emissions : A Review. K. Eftaxias, SM Potirakis, Y. Contoyiannis. 437-502 (2018).
- "The Higgs Particle". Popularized physics e-book, Chalkida 2012.
- Popularized physics articles in newspapers.

LECTURES

- "CERN Experiments". April 2008, Municipality of Avlidas.
- "CERN's Big Experiments and Scientific Discovery of the First Moments of the Universe". February 2013, Evia Laboratory of Natural Sciences (EKFE).
- "From the very small to the very large and from heartbeat to seismic vibrations". The Unification of Nature through the Critical State, November 2013, Kanithos High School, Chalkida.
- "NOBEL Physics 2013 Award for the Higgs Boson. The Great Moment in Physics". February 2013, Kanithos High School, Chalkida.

- "The paradoxes of quantum physics", February 2014, Kanithos High School, Chalkida.
- "Where the history of the world begins. The human principle". Department of Cultural Affairs, Secondary Education, Evia, May 2014.
- "The Quantum Universe" Karystos Primary School, June 2014.
- "How close we are to forecasting earthquakes", February 2016, Kanithos High School, Chalkida.

SCIENTIFIC INTERESTS

- Field Theories (Classical-Quantum)
- Complex systems, Critical phenomena and phase transition
- Non-linear dynamics and Chaos
- Signal time-series analysis using linear-nonlinear methods with various applications, such as pre-seismic process, biological signals, electronic physics, stock market, social data,....
- Mechanisms of Self-organization
- Physics Popularization.