

September 2019

PANAYIOTA POIRAZI

PERSONAL INFORMATION

Place of Birth: Vatyli, Famagusta, Cyprus
Date of Birth: August 6th, 1974
Marital Status: Married to [Panos Tsakalides](#), mother of Christos, Andreas and Melina

Work Address

Foundation of Research and Technology-Hellas (FORTH)
Institute of Molecular Biology and Biotechnology (IMBB)
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EDUCATION

1996 – 2000 University of Southern California, Los Angeles, California, USA
Ph.D. (Honors), Department of Biomedical Engineering.
1996 - 1998 University of Southern California, Los Angeles, California, USA
Master of Science (Honors), Department of Biomedical Engineering.
1992 – 1996 University of Cyprus, Nicosia, Cyprus.
Bachelor, Department of Mathematics and Statistics (Honors).

ACADEMIC AND PROFESSIONAL EXPERIENCE

1/2014 – present FORTH, Institute of Molecular Biology and Biotechnology.
Research Director (equivalent to Full Professor)
1/2020 – 1/2023 Humboldt University Berlin, **Einstein Visiting Fellow**
4/2016 – 4/2018 Charité – Universitätsmedizin Berlin, Cluster of Excellence
NeuroCure Visiting Fellow
5/2008 – 12/2013 FORTH, Institute of Molecular Biology and Biotechnology.
Researcher B (equivalent to Associate Professor)
1/2008 – 8/2008 University of Southern California (USC). Department of Biomedical Engineering, **Visiting Research Assistant Professor**
1/2008 – 8/2008 University of California, Los Angeles (UCLA). Department of Neurobiology, **Visiting Assistant Professor**
7/2004 – 5/2008 FORTH, Institute of Molecular Biology and Biotechnology.
Researcher C (equivalent to Assistant Professor)
9/2002 – 7/2004 FORTH, Institute of Molecular Biology and Biotechnology.
Marie Curie Postdoctoral Fellow
5/2001 – 8/2002 B.S.R.C. “Alexander Fleming”, Institute of Immunology.

	Research Associate and Marie Curie Postdoctoral Fellow
2/2001 – 7/2002	University of Cyprus, Department of Computer Science. Research Associate (long distance collaboration)
9/2000 – 6/2002	University of Southern California. Department of Biomedical Engineering, Laboratory for Neural Computation. Research Associate (long distance collaboration)
9/1997 - 9/2000	University of Southern California. Department of Biomedical Engineering, Laboratory for Neural Computation. Graduate Research Assistant
9/1995 - 2/1996	Cyprus Institute of Neurology and Genetics. Molecular Genetics Department, Neurogenetics Laboratory. Research Assistant

HONORS AND AWARDS

August 2019	Einstein Foundation Visiting Fellowship (2020-2023)
November 2018	Friedrich Wilhelm Bessel Research Award , by the Alexander von Humboldt-Stiftung (awarded March 2019)
June 2017	Elected EMBO member
April 2016-2018	Visiting Fellow , NeuroCure Cluster of Excellence
September 2015	Young Scientist and ERC Ambassador at the World Economic Forum Annual Meeting of the New Champions, Sept. 9-11, 2015 Dalian, China
February 2015	Elected member of the Young Academy of Europe
December 2014	FENS-Kavli Network of Excellence Scholar & Chair for 2014-2016 . This is a prestigious network of 30 outstanding young European neuroscientists.
September 2014	Young Scientist award and ERC Ambassador at the World Economic Forum Annual Meeting of the New Champions, Sept. 10-12, 2014 Tianjin, China
March 2014	“Manolis Christofidis” Young Investigator Award , given by the President of the Cypriot Government Nikos Anastasiadis
March 2013	Nominated by EMBO to join AcademiaNET - Expert Database of Outstanding Female Scientists and Scholars
July 2012	European Research Council (ERC) Starting Grant (2012-2018)
March 2008	Marie Curie Individual Outgoing Fellowship of the European Commission (2008-2010)
2007-2014	Young Investigator of the Network of European Neuroscience Institutes (ENINET)
October 2004	EMBO Young Investigator Award (2005-2008)

- January 2002 **Marie Curie Individual Fellowship of the European Commission** (2002-2004).
- 2001 **IBRO Advanced Course in Computational Neuroscience Fellowship**. Trieste, Italy 7/30/2001-08/24/2001.
- May 2000 **Fred S. Grodins' Graduate Research Award** for outstanding original research by a Biomedical Engineering graduate student, University of Southern California.
- 1996 - 2000 **Myronis Fellowship** for graduate studies at the University of Southern California based on academic excellence.
- 1996 - 2000 **The A.G. Levendis Foundation fellowship** for graduate studies in the United States, based on academic excellence.
- June 1996 **Highest G.P.A. Award** for graduating with the highest G.P.A in the School of Pure and Applied Sciences, University of Cyprus, during the academic year 1995-1996.
- June 1995 **Themistocle Dervi's Award** for academic excellence in the Dept. of Mathematics and Statistics, University of Cyprus.
- June 1995 **Academic Staff Award** for academic excellence, Dept. of Mathematics and Statistics, University of Cyprus.
- June 1994 **Stelios Pichorides Award** for ranking 1st in the Dept. of Mathematics and Statistics, University of Cyprus during the academic year 1993-1994.
- 1993 - 1994 **Aritemi Foundation Scholarship Award** for ranking 1st in the School of Pure and Applied Sciences, University of Cyprus during the academic year 1993-1994.

SELECTED PRESS RELEASES

- August 2019 Local Press featuring our Nature Communications publication on Interneurons:
<https://www.tovima.gr/2019/08/21/science/ellines-epistimones-anatrepoun-tin-yparxousa-theoria-gia-ta-egkefalika-kyttara/>
- January 2019 Press release in ScienceDaily for our collaborative paper with the Losonczy lab on Pinpointing the cells that control the brain's memory flow.
https://www.sciencedaily.com/releases/2019/01/190131113826.htm?fbclid=IwAR2NLgSoxxnIHZA134gHFH5DRPIhW-44sEEdkE3BnbVMaB_UQxhGUzflg
- July 2018 The ERC dEMORY project is featured by ERCcomics
<https://www.erccomics.com/blog/researchportraits-15>

- February 2018 Panayiota Poirazi speaks about [Learning, memory and its “evolution” into artificial intelligence](#) at the Natural Science Museum in Heraklion, Crete.
- June 2017 [IMBB researcher Panayiota Poirazi elected as EMBO member](#)
- February 2017 [IMBB researchers decipher the role of mossy cells in recognizing different environments with the use of computational models.](#) Article appeared in Neuron.
- February 2017 News article about the Cell Reports paper in local Press (in Greek), <http://www.efsyn.gr/arthro/stoys-dendrites-anazitoynta-mystika-toy-altshaimer>
- November 2016 [IMBB researchers build models that predict how memories are linked across time.](#) Article appeared on the cover of Cell Reports.
- March 2016 News article about the work of P. Petrantonakis & P. Poirazi on spike sorting (in Greek), <http://www.efsyn.gr/arthro/syn-algorithmo-kai-heira-kinei>.
- September 2015 [IMBB researcher Panayiota Poirazi elected as the Chair of the FENS-KAVLI Network of Excellence](#)
- February 2015 [IMBB researcher elected member of the Young Academy of Europe](#)
- September 2014 Interview in Lifo about Dr. Poirazi’s work (in Greek, <http://www.lifo.gr/team/lab/51568>)
- September 2014 Articles in [CretaLive](#) and [GoodNews.gr](#) about Dr. Poirazi’s participation at the WEF Annual meeting of the New Champions, Sep. 10-12, 2014 in Tianjin China.
- July 2014 [IMBB Press release](#) and article in [Epixeiro](#) regarding Dr. Poirazi’s “Young Scientist” award and upcoming participation at the WEF Annual meeting of the New Champions.
- March 2014 Articles in [CretaLive](#) and the Cyprus Daily [Kathimerini](#), about the Manolis Christofidis award to P. Poirazi.
- January 2014 Article in [Prisma News](#) about Dr. Poirazi giving the opening talk at TEDx Heraklion.
- December 2013 Article in the [Parliament Magazine](#) (issue 381) of the EU about the dEMORY project.
- May 2013 Article in [Cretalive](#) and Press release at FORTH about P.Poirazi joining AcademiaNet after nomination by EMBO.
- April 2013 P. Poirazi is featured as a pioneering scientist in TEDMED LiveAthens, in Athens, Greece.
- March 2013 P. Poirazi is featured as a leading female scientist in National Television (NET) on Woman’s Day, March 8th.
- February 2013 TV profile of P. Poirazi from Kriti TV profiling the work of the Computational Biology Lab. <http://www.youtube.com/watch?v=hdbuQ7dSR4U>

- January 2013 P. Poirazi is voted as Woman of the Year by the readers of the online magazine [LiFO](#).
- September 2012 Article in the Greek daily 'Vima' about the ERC Starting grant awarded to three young Greek scientists, one of which is P. Poirazi. [Relevant article](#)
- September 2012 Article in MyWAYPress about P. Poirazi and the ERC award. [Relevant Article](#)
- July 2012 Press Release for the ERC Starting Grant 'dEMORY -Dissecting the Role of Dendrites in Memory' project. Relevant articles in the local and national press: [Kathimerini](#), [Athens News Agency](#), [Patris](#), [KathimeriniCyprus](#), [Antenna](#)
- March 2011 Article in Science Illustrated (Greek version) covering the work of the Poirazi lab on single neuron models of information coding in the hippocampus. Respective publication: Pissadaki et al, PLoS Computational Biology, 2010.
- December 2010 Press release covering work of the Poirazi lab on single neuron models of information coding in the hippocampus. Respective publication: Pissadaki et al, PLoS Computational Biology, 2010. [Relevant article in the Greek national daily Eleftherotypia](#)
- July 2010 Press release covering work of the Poirazi lab on the analysis of cancer phenotypes. Respective publication: Petalidis et al, Molecular Cancer Therapeutics, 2008. [Relevant article in the Greek national daily Eleftherotypia](#)
- May 2007 Press release covering work of the Poirazi lab on brain modeling. Specifically, the role of dendrites in information processing in the hippocampus. [Relevant article in the Greek national daily Eleftherotypia](#).
- May 2007 Press release covering work of the Poirazi lab on computational methods for gene profiling in relation to cancer and modeling of gene regulatory networks in yeast. [Relevant article in the Greek national daily Eleftherotypia](#).

INVITED LECTURES

1. Invited speaker, Nature Conference on Neuromorphic Computing, 28-30/10/2019, Beijing, China.
2. Symposium Speaker, Society for Neuroscience Annual Meeting, 19-23/10/2019, Chicago, U.S.
3. Invited speaker, SIF-FEPS 2019 Symposium, Sept. 13th, 2019, Bologna, Italy.
4. Invited lecturer, Summer School in Computational and Theoretical Models in Neuroscience, Sept. 9-14, 2019, Venice, Italy.
5. Invited Speaker, New York University, May 20th, 2019, New York.
6. Invited Speaker, SUNY Downstate May 26th, 2019, New York.
7. Invited Speaker/Member, The Copenhagen Initiative Workshop: Developing a theory on how brains work. May 22-25, 2019, Copenhagen.

8. Invited Speaker, Ecole Normale Superier, 18th April 2019, Pisa, Italy.
9. Invited Speaker, Gordon Conference on Dendrites: Molecules, Structure and Function, 2019. March 31 – April 5, 2019, Ventura, California (cancelled).
10. Invited Speaker, 13 Gottingen Neuroscience Meeting, Symposium speaker, March 22nd 2019;
11. Keynote Speaker, COSYNE 2019, Feb. 28-March 3 2019, Lisbon, Portugal.
12. Invited participant, Barbados Workshop on Computational Complexity, February 22 - March 1, 2019, Barbados.
13. Invited Speaker, UCLA Seminar Series, Nov. 2nd, 2018, Los Angeles, CA.
14. Invited speaker, NanoBio Conference, Sept. 24-28 2018, Heraklion, Crete
15. Keynote Speaker, INCF Neuroinformatics 2018 Congress, Montreal, Canada, August 9-10, 2018.
16. Invited Speaker, FENS FORUM 2018 Symposium “Lost and found again: the engram! Are we there yet?”, Berlin, July 8th, 2018.
17. Invited Speaker, EMCCS-FENS satellite event, Berlin, July 6th, 2018.
18. Invited Speaker, Symposium on “Dendritic Computation”, May 22, 2018, Columbia University, New York, U.S.
19. Invited Speaker, Bernstein Center for Computational Neuroscience, 13-16 March 2018, Berlin, Germany.
20. Invited Speaker, Max Planck Institute for Brain Research, 20-22 February, 2018, Frankfurt, Germany
21. Speaker and co-organizer, Winter Conference on Neural Plasticity (WCNP 2018), Symposium on Dendritic Computations and Plasticity, February 2nd, 2018, Curacao, Caribbean.
22. Invited Speaker, IBRO SIMONS COMPUTATIONAL NEUROSCIENCE IMBIZO 7 - 28 January 2018, Muizenberg Beach, Cape Town, South Africa.
23. Invited Speaker, 6th European Synapse meeting, 4-6 Dec. 2017, Milan, Italy
24. Invited Speaker, FKNE Winter Symposium, 3-5 December 2017, IST, Vienna, Austria.
25. Invited Speaker, EMBO member’s meeting, 18-20/10/2017, Heidelberg, Germany
26. ERA chair Invited Speaker, Cyprus Institute of Neurology and Genetics, October 6th, 2017, Nicosia, Cyprus.
27. Invited Speaker, FFRM 2017, Pecs, 19-24/9/2017
28. Invited Speaker, Kavli Institute for Systems Neuroscience in Trondheim, Norway, August 17th, 2017
29. Invited Keynote Speaker, OCNS 2017, July 15-20, Antwerp, Brussels.
30. Invited Speaker, BioComp Summer School, June 26- July 2, 2017, Roscoff, France
31. Invited Speaker, Symposia on Memory (MATHMEM), March 3-5, 2017 CRMatemática, Barcelona, Spain
32. Invited speaker, IBRO SIMONS COMPUTATIONAL NEUROSCIENCE IMBIZO 9 - 29 January 2017, Muizenberg Beach, Cape Town, South Africa.
33. Invited speaker, Gatsby Computational Neuroscience Unit, Sainsbury Welcome Centre for Neural Circuits and Behaviour, UCL, London, October 19th, 2016.
34. Invited speaker, Neuroscience Department, Erasmus MC, Rotterdam, Netherlands, October 20th, 2016.
35. Invited speaker, workshop on "Active dendrites: new experimental branches and theoretical tweaks", Bernstein Conference, Berlin, September 20-21, 2016.
36. Invited speaker, Neurocure Cluster of Excellence, Charite University, Berlin, September 19th, 2016.

37. Invited guest speaker, NRSN Summer School in Neuroscience, Kavli Institute for Systems Neuroscience at NTNU, Trondheim, 21-28 August 2016.
38. Invited keynote speaker (declined due to overlap with FENS-Forum), OCNS meeting 2016, July 2-7, 2016, Jeju Island, South Korea.
39. Dendritic Sophistication: from structure to Function, EITN, March 15-16, 2016, Paris, France.
40. Keynote Speaker, Annual Meeting of the German Priority Program "Resolving and manipulating neuronal networks", Feb. 29 – March. 3, 2016, Frankfurt, Germany.
41. "How dendritic nonlinearities contribute to memory formation" FENS Featured Regional Meeting, October 10th 2015, Thessaloniki, Greece
42. "The role of dendrites in memory formation", 4th Annual Meeting of the Young Academy of Europe, September 7, 2015, Darmstadt, Germany.
43. "Binding memories via dendritic and neuronal co-allocation", Open Source Brain Workshop, 11-15 May 2015, Alghero, Sardinia.
44. "Associating memories through synapse clustering in non-linear dendrites", Gordon Research Conference, Dendrites: Molecules, Structure & Function. 15-20 March, 2015, Ventura, California.
45. "Associating memories: weak or strong, two or more, one model to bind them all" University of California Los Angeles (UCLA), March 13th 2015, Los Angeles, California.
46. "The role of dendrites in single neuron functions: insights from biophysical models", NETT Winter School on Neural Engineering, January 8-9th, 2015 Imperial College London, U.K.
47. Invited speaker & ERC Ambassador for the WEF Annual meeting of the New Champions, Sept. 10-12, 2014, Tianjin, China.
48. "Effects of morphology on dendritic integration and neuronal function", July 10th 2014, Cyprus Institute for Neurology and Genetics (CING), Nicosia, Cyprus
49. "The role of dendrites in information processing: Insights from computational models," Medical School, University of Patras, February 17th, 2014.
50. Invited speaker for TEDx Heraklion 2014, as one of the key young investigators in Greece. Heraklion, February 8th 2014.
51. "Learning and remembering with dendrites", 27th Annual meeting of the Hellenic Society for Neuroscience, November 30th, 2013 Athens, Greece.
52. Special Guest at the 2013 SfN-sponsored Computational Neuroscience Social, November 12th, 2013 San Diego, CA, USA.
53. "Spatio-temporal encoding in pyramidal neuron models: the role of dendrites", Bernstein Center for Computational Neuroscience, Max Planck Institute for Dynamics and Self Organization, Gottingen, Germany, October 22nd, 2013.
54. "Dendritic computations and memory formation", NAMASEN Workshop on Computational Modeling of Neurons, Networks and Systems. September 11-13, 2013, Sheffield, U.K.
55. "Dendrites, learning and memory: a modeller's view", University of Antwerp, Belgium, June 4th 2013.
56. "Coding with Dendrites", University of Southern California (USC), May 2nd 2013 and
57. University of California Los Angeles (UCLA), Los Angeles, U.S.A., May 3rd 2013.
58. Invited interview for TEDMED AthensLive 2013, as one of the key young investigators in Greece. Athens, April 19th 2013.
59. "Coding with Dendrites", University of Cyprus, Nicosia, Cyprus, April 17th, 2013.
60. "Coding with Dendrites", Cambridge University (Nov. 6th, 2012),

61. Gatsby Computational Neuroscience Unit, UCL (Nov. 7th 2012) and
62. Imperial College (Nov. 8th, 2012), London, U.K.
63. "Tools for miRNA gene, mature and target prediction", Copenhagen University, October 24th, 2012.
64. "Coding with Dendrites", AREADNE meeting, Santorini, Greece, June 21-24, 2012
65. "Dendrites and information coding: insights from biophysical model cells and circuits", Bernstein Center Freiburg, Freiburg, Germany, March 27th 2012.
66. Invited speaker for the PENS/Hertie Winter School 2012 "Neural Coding in Sensory Systems", Obergurgl, Austria, January 8-15, 2012.
67. "Dendrites and information processing: insights from compartmental models", CNS*2011 workshop on 'Dendrite function and wiring: experiments and theory', Stockholm, Sweden, July 27, 2011
68. "Intelligence at the single neuron level?", Brain and Mind graduate program, Seminar Series for 2011, University of Crete, Heraklion, Crete, April 14, 2011.
69. "Modelling memory functions in single cells and small networks", 23rd Annual Meeting of the Hellenic Society for Neuroscience, Rodos, September 13-14, 2009.
70. "Modelling Biology: from the disk to the disk", Department of Biology, University of Cyprus, September 29th, 2008.
71. "Computational approaches for modelling neural functions", Keynote Speaker, International Conference on Computational Methods in Science and Engineering (ICCMSE), Hersonissos, Crete, September 25-30, 2008.
72. "Information processing in single cells and small networks: insights from compartmental models", AREADNE meeting, Nomikos Conference Center, Santorini, Greece, June 26-29, 2008.
73. "Dendrites as neurons, neurons as neural networks", Workshop on Quantitative Neuron Modelling: Predicting every spike?, EPFL, Lausanne, Switzerland, June 25-26th, 2007
74. "The multiplicative neuron", The Onassis Foundation Science Lecture Series in Biology, FORTH, July 20th, 2006.
75. "How does a single pyramidal model-neuron remember?" Medical School, University of Patras, May 17th, 2006.
76. "Mnemonic capacity of CA1 pyramidal neuron models," Brain and Mind Colloquium, Medical School, University of Crete, May 10th, 2006.
77. "Role of persistent activity in learning and memory capacity of young and aged CA1 pyramidal neuron models," Young Investigator Presentation. Hellenic Society for Neuroscience Meeting, University of Patras, Oct. 1st, 2005.
78. "Information processing in young and aged pyramidal neuron models," presented in the Department of Cellular Physiology, Max Planck Institute for Medical Research, Heidelberg, Germany, December 8th, 2004.
79. "Using Computational Methods to Understand Neural and Gene Function," presented at the Department of Physics, University of Crete, Greece. December 2nd, 2004.
80. "Using Computational Approaches to Understand Neural and Gene Function," presented at the Cavaliere Ottolenghi Scientific Institute (COSI), Università degli Studi di Torino, Italy, May 14th, 2004
81. "Information processing in the young and the aged hippocampus," presented at the Symposium for Brain and Mind, FORTH, *Heraklion, Crete*, March 27, 2004
82. "Computational Neuroscience: Introduction to Brain Modeling," FORTH, *Heraklion, Crete*, February 10, 2003

83. "Computational Approaches to Biological Questions", presented at the Foundation for Research and Technology, Hellas (FORTH), *Heraklion, Crete*, October 23, 2002.
84. "Tumor Classification via the use of Gene Expression and Neural Networks," presented at the Cyprus Institute for Neurology and Genetics, *Nicosia, Cyprus*, September 25, 2002.
85. "Computational Methods for Microarray Data Analysis," Master level seminar, Department of Biotechnology and Biosciences, University of Milan-Bicocca, Milan, Italy, March 27th, 2002.
86. "Biologically Inspired Algorithms for Pattern Classification: how active neuronal properties and structural plasticity boost storage capacity," ICS-FORTH, *Heraklion, Crete*, March 14, 2001.
87. "Information Processing in the Brain: how active dendritic properties and structural plasticity boost memory capacity," presented at the B.S.R.C. "Alexander Fleming", *Vari-Athens, Greece*, March 12, 2001.
88. "Linear and Nonlinear Processing of Learned Information in Neural Tissue," presented at the Cyprus Institute for Neurology and Genetics, *Nicosia, Cyprus*, January 8, 2001.
89. "Learning and Memory in the brain: a very significant but little explored reservoir for information storage," Biomedical Engineering Seminar Class, University of Southern California, *Los Angeles*, October 17, 2000.
90. "The Capacity of Subsampled-Quadratic Classifiers," presented at the 2nd Annual *Fred. S. Grodins' Graduate Research Symposium*, University of Southern California, *Los Angeles*, April 23, 1998.

TEACHING

Courses

- February 2017-: Co-tutor (with Ioannis Tsamardinos) of the Course *Bioinformatics Methods for Data Analysis*, graduate program in "Bioinformatics", Medical School, Univ. of Crete, Heraklion, Crete. Lectures cover various methods and tools (clustering, classification, dimensionality reduction etc) for large scale biological data analysis.
- 2013-present: Co-tutor (with Kiki Sidiropoulou) in the course *Neurophysiology of pyramidal neurons: experiments and modelling* graduate program "Neurobiology." Medical School, Univ. of Crete, Heraklion, Crete. Lectures cover computational neuroscience concepts in general, biophysical modeling of neuronal cells, plasticity rules and how to use the NEURON simulation environment.
- 2008-present: Participating in teaching the graduate level course *MBB-1405: Multicellular Organization of Life*, graduate program 'Molecular Biology and Biomedicine', Department of Biology, University of Crete, Heraklion, Crete.
- 2007-present: Participating in teaching the graduate level *Computational Neuroscience core course* of the 'Brain and Mind' interdisciplinary graduate program. Medical School, Univ. of Crete, Heraklion, Crete. Lectures cover biophysical modeling of neuronal cells.
- 2003-present: Participating in teaching the Master level course *BIO 505: Bioinformatics*, graduate programs in 'Molecular Biology and Biomedicine' and

'Protein Biotechnology,' Department of Biology, University of Crete, Heraklion, Crete.

- 2008: Participated in teaching the graduate level course *Algorithms in Bioinformatics*. Dept. of Computer Science, Univ. of Crete, Heraklion, Crete.
- 2005-2008, 2014: Invited Speaker in the Graduate Program "Informatics in the Life Sciences" at the Univ. of Patras. Course: "Memory of a single pyramidal neuron model"
- 2003: Participated in teaching the Master level course *BIO 409: Multidisciplinarity in Modern Biology*, graduate program in 'Molecular Biology and Biomedicine,' Department of Biology, University of Crete, Heraklion, Crete.
- 2002: Participated in teaching the Master level course *BIO 408: Methods for Analyzing Biological Data*, graduate program in 'Molecular Biology and Biomedicine,' Department of Biology, University of Crete, Heraklion, Crete.

Workshops/Short Courses

- IBRO SIMONS COMPUTATIONAL NEUROSCIENCE IMBIZO
7 - 28 January 2018, Muizenberg Beach, Cape Town, South Africa. (Invited Speaker)
- IBRO SIMONS COMPUTATIONAL NEUROSCIENCE IMBIZO
9 - 29 January 2017, Muizenberg Beach, Cape Town, South Africa. (Invited Speaker)
- NAMASEN Workshop on DENDRITES. July 1-3, 2014, FORTH, Heraklion, Crete. (Organizer/Speaker)
- NAMASEN Workshop on Computational Modeling of Neurons, Networks and Systems. September 11-13, 2013, Sheffield, U.K. (Organizer/Speaker)
- PENS/Hertie Winter School 2012 "Neural Coding in Sensory Systems", Obergurgl, Austria, January 8-15, 2012. (Invited Speaker)
- Workshop in Bioinformatics, September 13th-18th, 2004. University of Crete and IMBB-FORTH. Tutorial on "Methods for Microarray Data Analysis and Inference"

MENTORING / STUDENT SUPERVISION

Postdoctoral Fellows

1. Spiridon Chavlis, February 2018-present
2. Athanassios Spathis, February 2017- June 2018
3. Athanasia Papoutsis, February 2014 – present
4. Panagiotis Petrantonakis, December 2012 – September 2016
5. Pavlos Pavlidis, January 2013 – March 2016
6. Constantinos Melachrinou, February 2014 – August 2015
7. Benjamin Auffarth, December 2012 - September 2014
8. Vassilis Cutsurides, December 2012 – September 2014
9. Kiki Sidiropoulou, 2005 - 2011, currently Assist. Prof. at the University of Crete.
10. Jose Gomez, 2005 - 2006, currently Assist. Prof., Univ. of La Laguna, Tenerife Spain.

Ph.D. Students

1. Michalis Pangalos, "The role of CA3 pyramidal neuron dendrites in pattern completion: a modeling study." August 2019 - present
2. Kostas Petousakis, "Modeling the orientation properties of L2/3 V1 pyramidal neurons in the mouse." August 2019 - present
3. Panagiotis Bozelos: Ph.D. project title "Morphological determinants of neuronal function in hippocampal pyramidal neurons." October 2013 – present
4. Stefanos Stefanou: Ph.D. project title "Modeling the learning-induced emergence of bi-stability in large scale biophysical PFC networks." January 2013 - present
5. Spyridon Chavlis: Ph.D. project title "Investigating the role of dendrites in sparse representations in the hippocampus using computational models." December 2013 – December 2017
6. George Kastelakis: Ph.D. project title "Modeling the mechanisms of fear memory allocation in amygdala neural networks." May 2010 – March 2016.
7. Nestoras Karathanassis: Ph.D. project title "Computational and experimental approaches towards characterizing the role of novel miRNAs in cancer." December 2008 - December 2013.
8. Athanasia Papoutsis: Ph.D. project title "Modeling persistent activity in the prefrontal cortex." December 2008 - December 2013
9. Maria Manioudaki: Ph.D. project title "Mathematical models of regulatory networks in yeast cells under stress conditions", Department of Chemistry, University of Crete, January 2005 - January 2010.
10. Anastasis Oulas: Ph.D. project title "Computational prediction of gene classifiers and microRNAs in cancer", Department of Biology, University of Crete, February 2003 - June 2009.
11. Eleftheria Pissadaki: Ph.D. project title "Encoding of spatial and temporal information by a single CA1 pyramidal neuron", Department of Biology, University of Crete, October 2003 - December 2007.
12. Eleftheria Tzamali (co-supervision with Prof. Y. Tollis and Dr. M. Reczko): Ph.D. project title "Modelling of polymorphism in bacterial communities", Department of Comp. Science, University of Crete, Jan. 2005 - March 2010.

Master Students

1. Maria Katsoli "Computational modeling of adult born granule cells", October 2018-September 2019.
2. Georgia Soursou, "Modelling dendritic contributions to single neuron computations in human cells", October 2018-September 2019.
3. Ioanna Pandi, "Computational modeling of spatial learning in CA1", October 2017-present.
4. Theodore Tamiolakis, "A combined modeling/experimental study of the CA2 hippocampal area and its role in social interactions." October 2017 –November 2018.
5. Michalis Pangalos, "The role of CA3 pyramidal neuron dendrites in pattern completion: a modeling study." October 2017-June 2019.
6. Kostas Petousakis, "Modeling the orientation properties of L2/3 V1 pyramidal neurons in the mouse." October 2017-June 2019.
7. Akis Linardos, "Brain inspired deep learning", September 2017-June 2018
8. Alexandra Tzilivaki. "A detailed model of a L5 PV interneuron in the PFC." Sept. 2015 – Sept. 2017.

9. Manolis Kousanakis (co-supervision with Apostollos Dollas, Dean, School of Electronic & Computer Engineering, TUC, Chania). Research project: an FPGA implementation of a neural network with active dendrites and synaptic plasticity. June 2015 – June 2016.
10. Georgia Kontodimou, “Modelling the properties of orientation preference in L2/3 V1 pyramidal neurons” February 2016-September 2016.
11. Eleni Gennitsaridi. May 2015- March 2016. “Modelling the olfactory system”
12. Vicky Kyrimi. “Modelling branch strength potentiation” May 2014 – September 2016.
13. Evaggelia Pollali. Thesis title “Modeling place fields in single CA1 pyramidal neurons.” February 2014 – March 2015.
14. Daphne Krionerity. Thesis title “Modeling up and down states in a PFC microcircuit.” May 2010-June 2011.
15. Maria Psarou. Thesis title “Role of dendritic morphology and ionic mechanisms on bursting activity in pyramidal neurons.” March 2010-March 2011.
16. Issam Rabi. Thesis title “Computational analysis of P4Hs in plant stress,” May 2009-May 2010.
17. Nestoras Karathanasis. Thesis title: “Identification of miRNAs involved in synaptic plasticity: mir124/gria2” Department of Biology, University of Crete, October 2007 –November 2008.
18. Katerina Gkirtzou. Thesis title “Methods for computational identification of miRNAs.” Department of computer Science, University of Crete, October 2006-November 2009.
19. Pavlos Pavlidis: Thesis title “Computational methods for identification of informative genes in microarray data”, Department of Biology, University of Crete, March 2004 –July 2005.
20. Maria Markaki: Master project title “Using computational models of single neurons to study the effects of aging on neural learning in the hippocampus” Department of computer Science, University of Crete, January 2003-December 2004.

Undergraduate Students

1. Emina Makedona, Reduced models of FS Basket cells with active dendrites. Department of Biology, University of Crete, Sept. 2017-August 2018.
2. Manolis Kousanakis (co-supervision with Apostollos Dollas, Dean, School of Electronic & Computer Engineering, TUC, Chania). Research project: an FPGA implementation of a neural network with active dendrites. June 2014 – May, 2015.
3. Stefanos Papadantonakis (w. Pavlos Pavlidis). Research project: a computational tool for multispecies coalescence. Department of Biology, University of Crete, July 2013-December 2013.
4. Alexandra Tzilivaki. Research project: modeling Up and Down states in PFC neurons. Department of Biology, University of Crete, February 2013-2015
5. Stellios Anastasakis. Thesis title “Computational modeling of fear memory allocation in amygdalar neuronal populations ” October 2011-November 2012
6. Katerina Gkirtzou. Thesis title “Computational identification of plant miRNA precursors in the genome of plant viruses.” Department of computer Science, University of Crete, January 2006- October 2006

7. Philippa Constantinou. Thesis title “Computational identification of plant mRNA targeted by multiple miRNAs” Department of Biology, University of Crete, October 2005 –October 2006

Participation in PhD Committees

1. Achilleas Koutsou (supervisor: Chris Christodoulou), Department of Computer Science, University of Crete (Defense committee member, June 2015)
2. Georgia Orphanoudaki (supervisor: Tassos Economou), Department of Biology, University of Crete (2011-2015).
3. Xanthippi Konstantoudaki (supervisor: Kiki Sidiropoulou), Department of Biology, University of Crete (2009-2014).
4. Nikolas Papanikolalou (supervisor: Ioannis Iliopoulos), Medical school University of Crete, (defense committee member, November 2013)
5. Romain Caze (supervisor: Boris Gutkin), Institute for the Study of Cognition Ecole Normale Supérieure Paris (Defense committee member, November 2012).

Participation in Master Thesis Committees

1. Vasiliki Mitsi, Department of Biology, University of Crete (2012).
2. Angelos Armen, Department of Computer Science, University of Crete (2011).
3. Orphanoudaki Georgia, Department of Biology, University of Crete (2010).
4. Giannis Karagiampakis, Department of Biology, University of Crete (2003).

PROFESSIONAL ACTIVITIES

Member of:

- %1The Copenhagen Initiative, aiming to build a sketch of a theory of fast brain dynamics. May 22-25, 2019, Copenhagen.
- %1Scientific Council for Biosciences, Ministry of Education, Research and Religion (Τ Ε Σ, March 2018-present)
- %1Scientific Council, IMBB-FORTH (2016-present)
- %1EMBO (2017-present)
- %1Young Academy of Europe (2015-2020)
- %1FENS-KAVLI Network of Excellence (2014-2018). Elected Chair of the Network for 2015-2017.
- %1World Economic Forum, Young Scientists Community (WEF-YS, 2014-present)
- %1Society for Neuroscience (SFN)
- %1Federation of European Neuroscience Societies (FENS)
- %1European Molecular Biology Organization (EMBO-YIP)
- %1Hellenic Society for Computational Biology (HSCB)
- %1Hellenic Society for Neuroscience (HSN)
- %1Marie Curie Fellows Association (MCFA)
- %1European Neuroscience Institute Network (ENI-NET) -Alumni

Member of Organizing Committees for:

- %1ERC-GR 2018, Organizing Committee Chair, 1st meeting of the Greek ERC grantees, 15-17 Oct, 2018, Heraklion, Crete
- %1FENS-Forum 2018, Program Committee member

- %1DENDRITES 2018, EMBO Workshop on dendritic Anatomy, Molecules and Function (Chair), June 17-20, 2018, FORTH, Crete. Co-chairs: E. Schuman, M. Larkum, M. Hausser
- %1FENS-Forum 2016, Symposium on *Dendritic encoding of neuronal network function and plasticity*, chaired by Holtmaat, Anthony & Poirazi, Panayiota.
- %1DENDRITES 2016, EMBO Workshop on dendritic Anatomy, Molecules and Function (Chair), June 18-21, 2016, FORTH, Crete.
- %1AREADNE 2016, Research in Encoding and Decoding of Neural Ensembles, 22-26 June, 2016, Santorini, Greece.
- %1COSYNE 2015 Workshop on Synapse Clustering (Chair), March 10th, 2015, Utah, U.S.
- %1DENDRITES 2014, International meeting and 4th NAMASEN Training Workshop (Chair), July 1-4, 2014, FORTH, Crete.
- %1AREADNE 2014, Research in Encoding and Decoding of Neural Ensembles, 25-29 June, 2014, Santorini, Greece.
- %1NAMASEN Workshop on Computational Modeling of Neurons, Networks and Systems, September 11-13, 2013, Sheffield, U.K.
- %1HSCBB 2012 (Chair of Local Organizing Committee), The 7th Annual Conference of the Hellenic Society for Computational Biology and Bioinformatics, 4-6 October 2012, Heraklion, Crete, Greece
- %1AREADNE 2012, Research in Encoding and Decoding of Neural Ensembles, 1-4 July, 2012, Santorini, Greece.
- %1AREADNE 2010, Research in Encoding and Decoding of Neural Ensembles, 17-20 June, 2010, Santorini, Greece.
- %1ITAB 2009 (Track chair), 9th International Conference on Information Technology and Applications in Biomedicine, 7-9 November, 2009, Larnaca, Cyprus.
- %1HSCBB 2006, The 1st Cretan Bioinformatics Forum, June 19th, 2006, Heraklion, Crete.
- %1HSN 2006, The 20th Annual Meeting of the Hellenic Society for Neuroscience, Sept. 29th - Oct. 1st, 2006 Heraklion, Crete.
- %1'Modeling the Brain's Labyrinth'. 10th year anniversary meeting for the EU course in computational neuroscience, Sept. 24th -27th, 2006 Fodele Beach, Crete (Local Organizer)

Reviewer for:

- %1Neuron
- %1Nature Neuroscience
- %1Journal of Neuroscience
- %1Journal of Neurophysiology
- %1Journal of Computational Neuroscience
- %1Brain Structure and Function
- %1PLoS Computational Biology
- %1PLoS One
- %1Cognitive Neurodynamics
- %1Neural Networks
- %1Nucleic Acid Research
- %1IEEE Transactions in Biomedical Engineering.
- %1IEEE Transactions on Information Technology in Biomedicine

- %1BMC Bioinformatics
- %1Bioinformatics
- %1Genomics, Proteomics and Bioinformatics
- %1CNS 2007-present

Editorial duties:

- Section Editor, Computational Neuroscience, *European Journal of Neuroscience*
- Section Editor, Computational Neuroscience, *Neuroscience*
- Guest Associate Editor, Frontiers in Bioinformatics and Computational Biology

Participation in Evaluation Committees/ Funding Review Panels:

- Vice-chair, FET Open, European Innovation Council (EIC)
- Remote referee and panel member for the evaluation of EU grant proposals (FET Open, Health, Horizon 2020)
- Reviewer/Interviewer for EMBO Short and Long Term Fellowship Applications
- Reviewer for funding applications to the NWO Physical Sciences
- Reviewer for the Israel Science Foundation (ISF)
- Reviewer for the University of Nicosia Funding Program
- Reviewer for the National Bank of Greece, entrepreneurship competition
- Reviewer for GSRT research proposals

RESEARCH INTERESTS

My research interests lie in the field of computational modeling of biological systems with emphasis in the areas of Neuroscience, Machine Learning and Functional Genomics. Work in my lab can be divided in two disciplines: (a) **computational neuroscience**, where we focus on the use of modeling techniques for characterizing the role of dendrites in learning and memory and (b) **bioinformatics**, where we focus on the development of methods and tools for analyzing and modeling biological data.

Dendritic Computations

We are particularly interested in understanding how dendrites and their integrative properties contribute to learning and memory functions. Towards this goal, we build abstract mathematical as well as detailed biophysical models of neural cells and circuits across multiple brain regions (hippocampus, amygdala, PFC) and abstraction levels (single neurons, microcircuits, neuronal networks). We then use the models to study how the anatomical, biophysical and plasticity properties of dendrites contribute to memory functions.

Bioinformatics

In prior years my lab was also active in Bioinformatics. We focused on developing computational methods and tools for (a) analyzing large-scale gene expression data related to human cancer in search for gene markers and disease sub-categories, (b) identifying regulatory elements such as miRNAs and their targets in whole genomes of plants and mammals, (c) building theoretical models of gene regulatory networks. Our methodological approaches included (a) novel clustering and feature selection algorithms, (b) machine learning algorithms such as artificial neural networks, hidden Markov models etc.

FUNDING ID

Coordinator

1. **Einstein Visiting Fellowship**, Einstein Foundation Berlin, “Investigating the mechanisms of behavioral flexibility”, Host: Larkum lab, Humboldt University, Berlin, 1/2020 – 12/ 2022, €449,771.
2. **FET Open project 863245 NEUREKA**: “A smart, hybrid neural-computo device for drug discovery”, European Commission, 12/2019-11/2023, Total budget: €2,776,704, Lab budget: €753, 250.
3. **FORTH Synergy Grant**, EVO-NMDA: Evolution of the NMDA receptor and its role in cognitive functions (co-PI with Pavlos Pavlidis, ICS-FORTH), 1/10/2019-30/9/21, Lab budget: €40,000.
4. **Foundation Santé (extension)**, “Linking dendritic properties of neurons to prefrontal function using a multi-disciplinary approach,” 4/2019-3/2020, Total/lab budget: €25,000.
5. **Foundation Santé**, “Linking dendritic properties of neurons to prefrontal function using a multi-disciplinary approach,” 3/2018-2/2019, Total/lab budget: €25,000
6. **Niarchos Foundation** postdoctoral fellowship to Dr. Thanasis Spathis 7/2017-7/2018, in collab. N. Tavernarakis. Lab budget: €27,000.
7. **Neurocure Visiting Grant**, Charité – Universitätsmedizin Berlin, in collaboration with Matthew Larkum. Project title “*Linking dendrites to PFC network function: a multidisciplinary approach.*” 1/04/2016-30/04/2018, budget: €47,000.
8. **Marie Curie Incoming Fellowship of the European Commission**. Project title “*Evolution of gene regulatory networks by means of natural selection and genetic drift.*” 1/04/2014-30/03/2016, Total (FORTH & lab) budget: €169,000 Fellow: Pavlos Pavlidis.
9. **ERC STG 2012**: dEMORY: ‘Dissecting the Role of dendrites in memory’, *Funding*: European Research Council, 2012-2017. Total (FORTH & lab) budget: €1,398,000
10. **ΗΡΑΚΛΕΙΤΟΣ** | | ‘Μελέτη microRNA-mRNA αλληλεπιδράσεων σχετιζόμενες με καρκίνο’, *Funding*: General Secretary of Research and Technology, Hellas. PhD. Student: Nestoras Karathanassis, Co-P.I. Kriton Kalantidis. 2010-2013, Total (Lab) Budget: €45,000
11. **Marie Curie Outgoing Fellowship of the European Commission**. Project title “Cellular mechanisms underlying formation of the fear memory trace in the mouse amygdala.” 1/3/2010-28/2/2012, Total (FORTH & lab) budget: €205,071 Fellow: Kyriaki Sidiropoulou.
12. **Marie Curie Individual Outgoing Fellowship** of the European Commission. Project title “Computational modeling and physiological studies of neural form and function in the aging brain.” 1/3/2008-28/2/2010, Total (FORTH & lab) budget: €204,141 P.I & Fellow: Panayiota Poirazi
13. **EMBO Short Term Fellowship** for visiting Alcino Silva’s lab at UCLA and receiving training in electrophysiology techniques. *Funding*: EMBO, 15/1/2008-15/3/2008, Total Lab budget: €6,800. Fellow: Panayiota Poirazi
14. **Levendis Foundation Grant** for the establishment of an Electrophysiology Unit at IMBB-FORTH, *Funding*: Levendis Foundation, 1/2006, Total (FORTH & lab) budget: €109,175.

15. **PENED** “Development of computational methods for genomic data analysis”, *Funding:* General Secretary of Research and Technology, Hellas. 1/2006-12/2008, Total (FORTH) budget: €228.000, Lab budget: €129.600
16. **EMBO Young Investigator Award** “Using Computational Methods to Understand Neural and Gene Function” *Funding:* EMBO 1/2005-12/2007. Total (FORTH & lab) budget: €69.600.
17. **ΠΡΑΞΕ** “Development of a Software Package for the Analysis of Gene and/or Protein Expression Data.” *Funding:* General Secretary of Research and Technology, Hellas. 1/2004-6/2005, Total (FORTH & lab) budget: €30.000.
18. **Marie Curie Individual Fellowship of the European Commission.** Project title “Using Expression Profiling to Identify Molecular Mechanisms in Malaria: Introducing Neural Networks for Microarray Data Analysis.” Proposal ranked 4th among 200 funded applications. Contract no: QLK6-CT2001-51031, Total (FORTH & lab) budget €75.200 1/2002-6/2004.
19. **Levendis Foundation Grant** for completion and publication of postdoctoral research work, based on originality and impact on scientific community, 3/2001-9/2001. Total Budget €6,000.

Partner

20. **ΚΡΗΠΙΣ, ΒΙΟΣΥΣ:** Ανάπτυξη Διεπιστημονικών Ερευνητικών Δραστηριοτήτων στην Κατεύθυνση της Βιολογίας Συστημάτων. *Funding:* General Secretary of Research and Technology, Hellas, 2013-2015. Total (& FORTH) budget: €2,527,000. Lab budget: €30,000
21. **ERC Advanced Grant to Prof. A. Gravanis** (funded with national funds). “3D Scaffolds hosting neural stem cells: developing Neuroimplants and Neurobiosensors.” 2012-2015. Total (&FORTH) budget: €1,700,000. Lab budget: €40,000
22. **REGPOT:** InnovCrete: ‘Unlocking the innovative capacity of multidisciplinary structural biology-driven research in Crete’, *Funding:* FP7-REGPOT-2012-2013-1, 2012-2015, **Coordinator:** M. Kokkinidis, Total (&FORTH) budget: €4,000,000. The budget allocated to the Bioinformatics postdoc is ~90,000€.
23. **Marie Curie Initial Training Network of the European Commission** “Neuroelectronics and nanotechnology: towards a Multidisciplinary Approach for the Science and Engineering of Neuronal Networks” 2011-2015, **Coordinator: University of Antwerp**, Total budget: 2,968,540, Lab (& FORTH) budget: €186,000
24. **HP-SEE** ‘High-Performance Computing Infrastructure for South East Europe’s Research Communities’ *Funding:* EU, FP7-INFRASTRUCTURES-2010-2. 09/2010-09/2012. **Coordinator: GRNET**, Total budget: 2,100,000, Lab (& FORTH) budget: €30,000
25. **ΣΥΝΕΡΓΑΣΙΑ:** “Ανάπτυξη Εθνικού Δικτύου Γονιδιωματικής Έρευνας: Μεθοδολογική Προσέγγιση στην Βιολογία Συστημάτων.” *Funding:* General Secretary of Research and Technology, Hellas. 9/2010-9/2013. Total budget: €800,000, FORTH budget: 249,000, Lab budget: €41,500
26. **NSF 0515357** “Anatomical, Physiological, and Modeling Studies of Memory-Related Neural Form and Function”, *Funding:* NSF, USA. 30/9/2006-1/10/2009, Total budget: \$550,000. Lab budget: \$66,000 **P.I. Bartlett Mel**

- 27. PROGNOCHIP:** “Development and Establishment of DNA Microarray Technology in Greece: Identification and Validation of Classification and Prognosis Molecular Markers for Breast Cancer”, *Funding:* General Secretary of Research and Technology, Hellas. 12/2003-12/2006, Total budget: €350,000, FORTH budget: €155.500, Lab budget: €11,628. **P.I. George Thireos**
- 28. INFOBIOMED (NoE):** “Structuring European Biomedical Informatics to Support Individualised Healthcare.” *Funding:* EU, IST-eHealth program, FP6-IST-507585. FORTH budget: €528,000 **P.I. George Potamias**

Host Lab:

1. **ELIDEK Postdoctoral Research Grant** to Athanassia Papoutsi (hosted by the Poirazi lab, IMBB) and Meropi Mari (hosted by the Filippidis lab, IESL), “Synaptic Engram of Flexible Behavior”, 2018-2021, Total budget: 180,000 euro
2. **NARSAD Young Investigator Award** to Athanassia Papoutsi, 2019-2021, Total budget: 70,000 USD

PUBLICATIONS

A. DOCTOR OF PHILOSOPHY

Poirazi P. “Contributions of Active Dendrites and Structural Plasticity to the Neural Substrate for Learning and Memory,” University of Southern California, Los Angeles, California, July 2000. Supervisor: Prof. Bartlett W. Mel

B. MASTER OF SCIENCE

Poirazi P. “Memory Capacity of Neurons with Active Dendrites,” University of Southern California, Los Angeles, California, December 1998. Supervisor: Prof. Bartlett W. Mel

C. BOOK CHAPTERS

1. Panagiotis Bozelos and Panayiota Poirazi “Impact of Structural Plasticity on Memory Capacity”, To appear in ‘Rewiring the Brain: A Computational Approach to Structural Plasticity in the Adult Brain’, edited by Arjen van Ooyen and Markus Butz, Springer, New York (2017).
2. Stefanos S. Stefanou, George Kastellakis and Panayiota Poirazi. “Creating and constraining compartmental models of neurons using experimental data.” In “Patch Clamp Analysis: advanced techniques, third edition.” Edited by Alon Korngreen, Springer, New York (2016).
3. Oulas A, Karathanasis N, Louloupou A, Pavlopoulos GA, **Poirazi P**, Kalantidis K and Iliopoulos I. “Prediction of microRNA Targets”, RNA Bioinformatics, Methods in Molecular Biology, Springer, New York. Volume 1269, 2015, pp 207-229| 10.1007/978-1-4939-2291-8_13, Print ISBN 978-1-4939-2290-1.
4. **Poirazi, P.** “Dendritic Computations”, invited contribution. In: Jaeger D., Jung R. (Ed.) Encyclopedia of Computational Neuroscience. Springer-Verlag Berlin Heidelberg, 2013.
5. Kastellakis G and **Poirazi P.** “Cellular and dendritic memory allocation”, to appear in «The Computing Dendrite», Springer Series in Computational Neuroscience, Ed. Torben-Nielsen, B. Remme, M., Cuntz, H., Volume 11, 2014, pp 415-432 (2013)

6. Papoutsi A, Sidiropoulou K and **Poirazi P.** “Memory beyond synaptic plasticity: the role of intrinsic neuronal excitability,” in *The Memory Mechanisms* by World Scientific Publishing, Ed. Peter Giese, Chapter 3, pg 53-80 (2012)
7. Oulas, A and **Poirazi P.** “Utilization of SSCprofiler to predict a new miRNA gene” in *MicroRNA and Cancer: Methods in Molecular Biology*, Ed. Wei Wu, vol. 676, Part 2, pg. 243-252, DOI: 10.1007/978-1-60761-863-8_17 (2011)
8. Oulas, A, Karathanasis, N and **Poirazi P.** “Computational Identification of miRNAs Involved in Cancer”, in *MicroRNAs and Cancer: Methods in Molecular Biology*, Ed. Wei, Wu, vol. 676, Part 1, pg. 23-41, DOI: 10.1007/978-1-60761-863-8_2 (2011)
9. **Poirazi P.** and Pissadaki E. ‘The Making of a Detailed CA1 Pyramidal Neuron Model’ in “Hippocampal Microcircuits: A Computational Modeller's Resource Book” by Springer New York, vol. 5, pg. 317-352, (2010)
10. Tzamali, E., M., **Poirazi, P.**, and Reczko, M. “Methods for Dynamical Inference in Intracellular Networks” in *Bioinformatics for Systems Biology*, by Humana Press, Ed. Stephen Krawetz, pg. 541-561, (2009).
11. Tzamali, E., Manioudaki, M., Reczko M. and **Poirazi, P.** “Methods for structural inference and functional module identification in intracellular networks” in *Bioinformatics for Systems Biology*, by Humana Press, Ed. Stephen Krawetz, pg. 517-539, (2009).

D. REFEREED JOURNAL PAPERS

* denotes corresponding author

D1. Submitted Manuscripts and Manuscripts in Preparation

1. Park, J., Papoutsi, A., Ash, R.T., Marin, M.A., **Poirazi***, P., & Smirnakis, S.M., “Contribution of apical and basal dendrites of L2/3 pyramidal neurons to orientation encoding in mouse V1” (**bioRxiv**, 2019. | DOI: <https://doi.org/10.1101/566588>, in revision)
2. Tristan Shuman, Daniel Aharoni, Denise J Cai, Christopher R Lee, Spyridon Chavlis, Jiannis Taxidis, Sergio E Flores, Kevin Cheng, Milad Javaherian, Christina C Kaba, Matthew Shtrahman, Konstantin I Kakhurin, Sotiris Masmanidis, Baljit S Khakh, **Panayiota Poirazi***, Alcino J Silva, Peyman Golshani*. “Breakdown of spatial coding and neural synchronization in epilepsy” (in revision, **bioRxiv**, 2018 | DOI: 10.1101/358580)
3. Novel dendritic action potentials shape the computational properties of human layer 2/3 cortical neurons Gidon A., Zolnik T.A., Fidzinski P., Bolduan F., Papoutsi A., **Poirazi P.**, Holtkamp M., Vida I., Larkum M.E. (under revision in Science).
4. Structured connectivity exploits NMDA non-linearities to induce dimensionally diverse responses in a PFC circuit Stamatiadis S.S., Papoutsi A., **Poirazi P.** (bioRxiv, August 2019).

D2. Published or Accepted Manuscripts

5. Contribution of Apical and Basal Dendrites of L2/3 Pyramidal Neurons to Orientation Encoding in Mouse V1 Park J.*, Papoutsi A.*, Ash R.T., Marin M.A., **Poirazi P.****, Smirnakis S.M.**. *Nature Communications*, accepted 2019. *equal first, ** equal last

6. Tzilivaki A, Kastellakis G, **Poirazi P**. Challenging the point neuron dogma: FS basket cells as 2-stage nonlinear integrators. *Nat Commun*. 2019 Aug 14;10(1):3664. doi: 10.1038/s41467-019-11537-7.
7. Ebner C, Ledderose J, Zolnik TA, Dominiak SE, Turko P, Papoutsi A, **Poirazi P**, Eickholt BJ, Vida I, Larkum ME, Sachdev RNS. Optically Induced Calcium-Dependent Gene Activation and Labeling of Active Neurons Using CaMPARI and Cal-Light. *Front Synaptic Neurosci*. 2019 May 24;11:16. doi: 10.3389/fnsyn.2019.00016.
8. Turi GF, Li WK, Chavlis S, Pandi I, O'Hare J, Priestley JB, Grosmark AD, Liao Z, Ladow M, Zhang JF, Zemelman BV, **Poirazi P**, Losonczy A. Vasoactive Intestinal Polypeptide-Expressing Interneurons in the Hippocampus Support Goal-Oriented Spatial Learning. *Neuron*. 2019 Jan 18. pii: S0896-6273(19)30010-8. doi: 10.1016/j.neuron.2019.01.009.
9. Ouares, Filipis, Tzilivaki, A., **Poirazi P**, Canpari M. Two distinct sets of Ca²⁺ and K⁺ channels are activated at different membrane potential by the climbing fibre synaptic potential in Purkinje neuron dendrites. *J Neurosci*. 2019 Jan 10. pii: 2155-18. doi: 10.1523/JNEUROSCI.2155-18.2018.
10. Frank, A.C., Huang, S., Zhou, M., Gdalyahu, A., Kastellakis, G., Wen, X., Silva, T.K., **Poirazi***, P., Trachtenberg, J.T, and Silva, A.J.. "Hotspots of Dendritic Spine Turnover Facilitate Learning-related Clustered Spine Addition and Network Sparsity" *Nat Commun*. 2018 9(1):422. doi: 10.1038/s41467-017-02751-2.
11. **Poirazi, P** and Kastellakis, G. "...with love, from Post to Pre". Preview, *Neuron* 96(1), 9-10, 2017.
12. Papoutsi, A., Kastellakis G., and **Poirazi P**. "Basal tree complexity shapes functional pathways in the prefrontal cortex" *J. Neurophysiology* 2017 Jul 12;jn.00099.2017. doi: 10.1152/jn.00099.2017.
13. Mel, B.W., Schiller, J. and **Poirazi P**. "Synaptic Plasticity in Dendrites: Some Complications and Coping Strategies" *Current Opinion in Neurobiology*, 2017 May | DOI: <https://doi.org/10.1016/j.conb.2017.03.012>
14. Chavlis, S. and **Poirazi, P**. "Pattern separation in the Hippocampus through the eyes of computational modeling." *Synapse*. 2017 Mar 18. doi: 10.1002/syn.21972.
15. **Poirazi P**. "The perfect grant and how to get it" *Nature*. 2017 Mar 7;543(7644):151. doi: 10.1038/543151a. (Opinion article)
16. Danielson NB, Turi GF, Ladow M, Chavlis S, Petrantonakis PC, **Poirazi P**, Losonczy A. "In Vivo Imaging of Dentate Gyrus Mossy Cells in Behaving Mice." *Neuron*. 2017Jan 5. pii: S0896-6273(16)30961-8. doi: 10.1016/j.neuron.2016.12.019
17. Petrantonakis, P., and **Poirazi, P**. "A novel and simple spike sorting implementation", *IEEE - Transactions on Neural Systems and Rehabilitation Engineering*, 2016 Dec 15. doi: 10.1109/TNSRE.2016.2640858
18. Kastellakis G., Silva, A.J. and **Poirazi. P**. "Linking memories across time via neuronal and dendritic overlaps in model neurons with active dendrites", *Cell Reports (on the Cover)*, 17 (6): 1491-1504, Nov 1st, 2016. doi: 10.1016/j.celrep.2016.10.015
19. Chavlis, S., Petrantonakis, P., and **Poirazi, P**. "Dendrites of dentate gyrus granule cells contribute to pattern separation by controlling sparsity." *Hippocampus*. 2017 Jan;27(1):89-110. doi: 10.1002/hipo.22675.
20. Papadantonakis, S., **Poirazi, P**, Pavlidis, P., CoMuS: Simulating coalescent histories and polymorphic data from multiple species. *Molecular Ecology Resources*, | doi: 10.1111/1755-0998.12544 May 2016.

21. **Poirazi, P.**, Belin, D., Gräff, J., Hanganu-Opatz, I., López-Bendito, G., Balancing family with a successful career in neuroscience, *Eur J Neurosci.* 2016 Jul;44(2):1797-803. doi: 10.1111/ejn.13280. (opinion article, FKNE)
22. Spires-Jones TL., **Poirazi P.**, Grubb MS., Opening Up: open access publishing, data sharing, and how they can influence your neuroscience career. *Eur J Neurosci.*, 2016 Mar 7. doi: 10.1111/ejn.13234. (opinion article, FKNE)
23. Emre Yaksi, E, **Poirazi, P.**, and Hanganu-Opatz, I., The road to independence: how to get funding in neuroscience, *Eur J Neurosci.*, February 2016, doi: 10.1111/ejn.13169. (opinion article, FKNE)
24. Bozelos, P., Stefanou-Stamatiadis, S., Bouloukakis, G., Melachrinou, C., and **Poirazi P.**, "REMODO: a tool for analyzing and remodeling the dendritic architecture of neural cells", *Front. in Neuroanatomy*, January 2016, doi: 10.3389/fnana.2015.00156.
25. Petrantonakis P and **Poirazi P.**, A simple method to Simultaneously detect and identify spikes from raw extracellular recordings. *Front. in Neurosci.*, 2015 Dec. 9:452 doi: 10.3389/fnins.2015.00452
26. Pundhir S., **Poirazi P.**, Gorodkin, J., Emerging applications of read profiles towards the functional annotation of genome, *Frontiers in Genetics*, 2015 May 19;6:188. doi: 10.3389/fgene.2015.00188. eCollection 2015.
27. Karathanasis, N., Tsamardinos, I., **Poirazi, P.**, DuplexSVM: a high performing miRNA duplex prediction methodology, *PLoS One.* 2015 May 11;10(5):e0126151. doi: 10.1371/journal.pone.0126151. eCollection 2015.
28. Joëls, M, Hoogenraad, CC., **Poirazi, P.**, Di Luca, M., NeuroView: The Hitchhiker's Guide to a Neuroscience Career, *Neuron*, 86 (3), 613-616, May 6th, 2015. doi:10.1016/j.neuron.2015.04.002
29. Cutsuridis V. and **Poirazi P.**, A computational study on how theta modulated inhibition can account for the long temporal windows in the entorhinal-hippocampal loop. *Neurobiol Learn Mem.* 2015 Feb 24;120:69-83. doi: 10.1016/j.nlm.2015.02.002.
30. Kastelakis G., Cai, D, Mednick, S., Silva A.J and **Poirazi P.**, Synaptic clustering within dendrites: an emerging theory of memory formation. *Progress in Neurobiology*, 126, 19-35, March 2015. doi: 10.106/j.pneurobio.2014.12.002
31. Petrantonakis P. and **Poirazi P.**, Dentate Gyrus Circuitry Features Improve Performance of Iterative Soft Thresholding Algorithm, *PLoS ONE* 10(1): e0117023. doi:10.1371/journal.pone.0117023, 2015.
32. Psarou, M., Stefanou - Stamatiadis, S., Papoutsis, A., Tzilivaki, A., Cutsuridis, V., **Poirazi, P.**, A Simulation Study on the Effects of Dendritic Morphology on Layer V PFC Pyramidal Cell Firing Behavior, *Front. Cellular Neurosci.* 16 September 2014 doi: 10.3389/fncel.2014.00287
33. Petrantonakis P. and **Poirazi P.**, A compressed sensing perspective of Hippocampal function, *Front Syst Neurosci.* 2014 Aug 8;8:141. doi: 10.3389/fnsys.2014.00141. eCollection 2014.
34. Papoutsis, A., Sidiropoulou, K., and **Poirazi, P.**, Dendritic nonlinearities reduce size requirements and mediate ON and OFF states of persistent activity in a PFC microcircuit model, *PLoS Comput Biol.* Jul 31;10(7):e1003764. doi: 10.1371/journal.pcbi.1003764, 2014.
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2. Kousanakis. M, Dollas A, Sotiriades, E, Papoutsis A, Petrantonakis P. and **Poirazi P.** "An Architecture for the Acceleration of the Hodgkin and Huxley Spiking Neural Network Model on the Convey HC-2ex FPGA-Based Processor", WRC 2016, Jan 2016, Prague.
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4. Petrantonakis, P.C, Papoutsis A., and **Poirazi P.** "Towards Predicting Persistent Activity of Neurons by Statistical and Fractal Dimension-Based Features," 2013 International Joint Conference on Neural Networks, Dallas, TX, USA, August 4-9, 2013.
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F. SELECTED CONFERENCE ABSTRACTS/POSTERS

1. Petousakis K-E, Papoutsi A and **Poirazi P.** *A Tale of Two Trees: Modeling Apical and Basal Tree Contribution to L2/3 V1 Pyramidal Cell Orientation Selectivity.* Poster Session presented at: Hellenic Bioinformatics 10; 2017 September 6-9; Foundation for Research & Technology Hellas (FORTH), Heraklion, Crete, Greece
2. Tamiolakis T., Chavlis S., **Poirazi P.** Elucidating the role of different CA3 hippocampal neurons in CA3 using computational modeling Hellenic Bioinformatics 10, Forth, Heraclion Greece, 6-9 September 2017
3. Chavlis S, Losonczy A and **Poirazi P.** Investigating the role of VIP + interneurons in learning-related place cell dynamics in hippocampal area CA1, poster presentation, HBIO 2017, 6-9/9/2017, FORTH, Crete.
4. Papoutsi A., Park J., Ash R.T., Smirnakis S.M., **Poirazi P.**, Modeling orientation preference in the apical and basal trees of L2/3 V1 neurons, CNS (2017), Antwerp, Belgium.
5. Bozelos, P., **Poirazi, P.** "Assessing the place field formation capability of CA1 pyramidal models in Alzheimer's Disease" , EMBO Conference "Cell Biology of the Neuron: Polarity, Plasticity and Regeneration" , held at Fodele Beach Resort, Fodele, Crete, Greece, 7-10 May 2017.
6. Chavlis S, Petrantonakis P C, **Poirazi P.** "Granule cell dendrites enhance pattern separation in dentate gyrus", DENDRITES 2016, 18-21 July 2016, Heraklion, Greece.

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10. Stefanou - Stamatiadis S, Petrantonakis P, Papoutsi A and **Poirazi P** (2016). Structured Connectivity Shapes Network Function in the Prefrontal Cortex. FENS Forum 2016, Copenhagen, Denmark.
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14. Papoutsi A. and **Poirazi P.**, "Modeling the interplay of dendritic spikes and network connectivity in persistent activity", invited oral presentation, CNS 2015, Prague, Czech Republic, July 22, 2015.
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16. Melachrinou C., Papoutsi A., and **Poirazi P.**, "The role of microcircuits in the pre-frontal cortex in detecting and encoding temporally patterned information", Computational Neuroscience Society 2015, Prague, Czech Republic, July 19-21, 2015
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18. Petrantonakis P.C. and **Poirazi P.**, "Information Processing In Hippocampus: A Compressed Sensing Approach", The Brain Conferences: Bridging Neural Mechanisms and Cognition, Copenhagen, Denmark, April 19-22, 2015.
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 28. Kastellakis G., and **Poirazi, P**. "Modeling multiple plasticity rules in dendritic branches", 43rd Society for Neuroscience Annual Meeting, 9-13 Nov. 2013, San Diego, California, U.S.A.
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40. Sidiropoulou, K and **Poirazi P.** “Firing-pattern specific properties of persistent activity in a pyramidal neuron model”, Society for Neuroscience Annual Meeting, Washington DC, U.S.A., Nov 12-18, 2011
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47. Papoutsis, A, Sidiropoulou, K. and **Poirazi, P.** “Microcircuits in the Prefrontal Cortex: *In Silico* Investigation of their role in the emergence, maintenance and Termination of Persistent Activity”, AREADNE meeting, Santorini, 17-21 June, 2010.
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