

خلاصه فعالیت‌های علمی



- نام و نام خانوادگی: علیرضا ولی‌زاده
- متولد: ۱۳۵۳/۳/۱۶ - شهرستان: تهران
- رتبه علمی: استاد - دانشکده فیزیک - دانشگاه تحصیلات تکمیلی علوم پایه زنجان
- عضویت در فرهنگستان: همکار مدعو از اسفند ۱۳۹۷

سوابق تحصیلی:

سال اخذ	محل اخذ	رشته تحصیلی	مدارک علمی
۱۳۷۵	تهران	برق الکترونیک	کارشناسی
۱۳۸۲	زنجان	فیزیک	کارشناسی ارشد
۱۳۸۶	زنجان (علوم پایه)	فیزیک ماده چگال	دکتری

فعالیت‌های اجرایی:

- ۱- مدیر دانشجویی (دانشگاه تحصیلات تکمیلی علوم پایه زنجان)
- ۲- مدیر گروه فیزیک (دانشگاه تحصیلات تکمیلی علوم پایه زنجان)
- ۳- برگزاری ۷ کنفرانس بین‌المللی از سال ۱۳۹۳ به عنوان دبیر علمی و اجرایی، در دانشگاه تحصیلات تکمیلی زنجان، پژوهشگاه دانش‌های بنیادی، دانشگاه تهران و مرکز برنشتاین آلمان

فعالیت‌های پژوهشی:

- تعداد مقالات چاپ شده در نشریات معتبر داخلی: ۵
- تعداد مقالات چاپ شده در نشریات معتبر بین‌المللی: ۴۵

- تعداد مقالات ارائه شده در همایش های داخلی: حدود ۲۰
 - تعداد مقالات ارائه شده در همایش های بین المللی: ۱۱
 - تعداد کتاب های تألیف شده: یک فصل کتاب
- به عنوان ویراستار علمی مجله Scientific reports در شاخه علوم اعصاب از سال ۲۰۱۷ مسئولیت بررسی ۳۱ مقاله را به عهده داشته ام. دو مجموعه مقاله نیز تحت ویراستاری من در مباحث ویژه علوم اعصاب در سال ۲۰۲۲ در مجلات معتبر چاپ شده اند.
- تعداد کتاب های ترجمه شده: -
 - تعداد طرح های پژوهشی: ۵ طرح از جمله یک طرح ملی در مورد بیماری پارکینسون
 - ثبت اختراع: -

فعالیت های آموزشی:

- ۱- هجده سال تدریس دروس مختلف رشته فیزیک در مقاطع کارشناسی، ارشد و دکتری
- ۲- تدوین و تدریس دروس مربوط به حوزه علوم اعصاب نظری - محاسباتی (مبانی نظری علوم اعصاب، مبانی محاسباتی علوم اعصاب، دینامیک شبکه های عصبی)
- ۳- تدوین برنامه درسی و راه اندازی دوره های کارشناسی ارشد و دکتری سیستم های پیچیده و علوم اعصاب نظری در دانشگاه تحصیلات تکمیلی زنجان
- ۴- برگزاری ۶ دوره ی درسی فشرده و کارگاه های متعدد تحقیقی - ترویجی در مورد علوم اعصاب نظری - محاسباتی در دانشگاه ها و مراکز متعدد از جمله شیراز، تربیت مدرس، تهران، پژوهشگاه دانش های بنیادی و مرکز ملی نقشه برداری مغز
- ۵- تربیت ۱۱ دانش آموخته دکتری و بیش از ۵۰ دانش آموخته کارشناسی ارشد

مشارکت در انجمن ها:

- ۱- عضویت در انجمن فیزیک ایران و انجمن علوم اعصاب ایران
- ۲- مشارکت در فعالیت های ترویجی انجمن فیزیک (تهیه پادکست و انجام سخنرانی های ترویجی برای معرفی رشته)

۵ مورد از مهم‌ترین کارهای پژوهشی انجام گرفته در ۵ سال گذشته: (مشخصات کامل مقاله، کتاب، یا هر کار پژوهشی دیگر)

تمرکز پژوهش گروه بنده در سال‌های اخیر بر روی تعمیق دانش بنیادی در مورد سازوکار انتقال اطلاعات در شبکه‌های عصبی و برهمکنش ساختار-دینامیک در مدارهای مغزی بوده است و به مرور در حال جهت‌دهی این پژوهش‌ها به سوی درک اختلال‌های عصبی و بهبود روش‌های درمانی هستیم. فهرست زیر شامل مقالات چاپ شده مرتبط با این خط تحقیقاتی، در مجلات بسیار معتبر شاخه می‌باشد.

- 1- Madadi Asl, Mojtaba, Alireza Valizadeh, and Peter A. Tass. "Decoupling of interacting neuronal populations by time-shifted stimulation through spike-timing-dependent plasticity." *PLOS Computational Biology* 19.2 (2023): e1010853.
- 2- Pariz, A., Fischer, I., Valizadeh, A., & Mirasso, C. (2021). "Transmission delays and frequency detuning can regulate information flow between brain regions." *PLoS computational biology*, 17(4), e1008129.
- 3- Ziaeemehr, A., Zarei, M., Valizadeh, A., & Mirasso, C. R. (2020). "Frequency-dependent organization of the brain's functional network through delayed-interactions." *Neural Networks*, 132, 155-165.
- 4- Rezaei, Hedyeh, Ad Aertsen, Arvind Kumar, and Alireza Valizadeh. "Facilitating the propagation of spiking activity in feedforward networks by including feedback." *PLoS computational biology* 16, no. 8 (2020): e1008033.
- 5- Pariz, Aref, Zahra G. Esfahani, Shervin S. Parsi, Alireza Valizadeh, Santiago Canals, and Claudio R. Mirasso. "High frequency neurons determine effective connectivity in neuronal networks." *NeuroImage* 166 (2018): 349-359.

Curriculum Vitae

Alireza Valizadeh

Professor of Theoretical Neuroscience, Institute for Advanced Studies in Basic Sciences (IASBS)

444 Prof. Yousef Sobouti Blvd., Zanjan 45137-66731, Iran

Tel: +98 (0) 24 3315 2120, 0912 3232 590

Fax: +98 (0) 24 3315 2104

Email: valizadeh@gmail.com

valizade@iasbs.ac.ir

Lab website: <https://iasbs.ac.ir/~valizade>

Google Scholar: <https://scholar.google.co.uk/citations?user=mt6sIDkAAAAJ&hl=en&oi=ao>

ORCID: <https://orcid.org/0000-0001-5101-8567>

ResearchGate: <https://www.researchgate.net/profile/Alireza-Valizadeh-2>

Field of research

Theoretical and Computational neuroscience, Dynamical systems, Neural dynamics, Brain oscillations, Communication in neuronal circuits

Career summary

16 years of experience with teaching courses on undergraduate and postgraduate levels, and supervision of graduate theses. Supervised ~30 MSc theses and 9 PhD dissertations.

Published 45 articles in peer-reviewed journals.

Founder and director of the Theoretical Neuroscience group at IASBS.

Research Positions

- **Professor**
From 2020
Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
- **Guest researcher**
2019-2021
School of Biological Sciences, Institute for research in Fundamental Sciences, Tehran, Iran
- **Associate Professor,**
2015-2020
Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
- **Guest researcher**
2015-2018
School of Cognitive Sciences, Institute for research in Fundamental Sciences, Tehran, Iran
- **Assistant Professor**
2009-2015
Institute for Advanced Studies in Basic Sciences, Zanjan, Iran

Visiting Professor Positions

- **Visiting Professor**
May-Aug 2018
Instituto de Física Interdisciplinary Sistemas Complejos | IFISC Universitat de les Illes Balears, Spain
- **Visiting Professor**
Jul-Sep 2017
Bernstein Center for Computational Neuroscience, Freiburg, Germany.
- **Visiting Professor**
Jun-Sep 2014
Research Department of Neuroscience, Ruhr Universitat, Bochum, Germany

Education

- **PhD**, Physics (Theoretical condensed matter) 2004-2008,
Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
Thesis: “Synchronization in Josephson junction arrays”
- **MSc**, Theoretical Physics 2001-2003,
Zanjan, Iran
- **BSc**, Electrical Engineering 1991-1996,
Tehran, Iran
- **High School Diploma**
1987-1991,
Alborz High School, Tehran, Iran

Publications

Journal papers

1. Madadi Asl, Mojtaba, Alireza Valizadeh, and Peter A. Tass. "Decoupling of interacting neuronal populations by time-shifted stimulation through spike-timing-dependent plasticity." *PLOS Computational Biology* (2023): 19(2): e1010853.
2. Fatemeh Bahadori-Jahromi, Sina Salehi, Mojtaba Madadi Asl, Alireza Valizadeh, "Efficient suppression of parkinsonian beta oscillations in a closed-loop model of deep brain stimulation with amplitude modulation." (2023)
3. Khatami, Saideh, Ehsan Bolhasani, Matjaž Perc, and Alireza Valizadeh. "Flexible patterns of information transfer in frustrated networks of phase oscillators." *Nonlinear Dynamics* (2023): 111, 2681–2691.
4. Elham Najafi, Alireza Valizadeh, and Amir H Darooneh, "Effect of Translation on Text Coherence: A Quantitative Study" *Journal of Quantitative Linguistics* (2022), 132, 155-165.
5. Alavi, Seyed Mojtaba, Amin Mirzaei, Alireza Valizadeh, and Reza Ebrahimpour. "Excitatory deep brain stimulation quenches beta oscillations arising in a computational model of the subthalamo-pallidal loop." *Scientific reports* (2022), 12 (1): 1-20.
6. Madadi Asl, Mojtaba, Atefeh Asadi, Jamil Enayati, and Alireza Valizadeh. "Inhibitory spike-timing-dependent plasticity can account for pathological strengthening of pallido-subthalamic synapses in Parkinson's disease." *Frontiers in Physiology* (2022): 972.
7. Asadi, Atefeh, Mojtaba Madadi Asl, Abdol-Hossein Vahabie, and Alireza Valizadeh. "The

origin of abnormal beta oscillations in the parkinsonian corticobasal ganglia circuits." *Parkinson's Disease* (2022).

8. Nariman Roohi and Alireza Valizadeh, "Role of inhibition delay on synchronization of inhibitory neuronal networks", *Neural Computation* (2022), 34 (6), 1425-1447.
9. M Madadi-Asl, AH Vahabie, A Valizadeh, and Peter Tass, "Spike-Timing-Dependent Plasticity Mediated by Dopamine and its Role in Parkinson's Disease Pathophysiology", *Frontiers in Network Physiology* (2022), 2, 817524.
10. Jaime Sánchez-Claros, Aref Pariz, Alireza Valizadeh, Santiago Canals, Claudio Mirasso, "Information Transmission in Delay-Coupled Neuronal Circuits in the Presence of a Relay Population" *Frontiers in systems neuroscience* (2021), 15, 71.
11. Elham Najafi, Alireza Valizadeh, and Amir H Darooneh, "Are all word ranking methods the same?" *International journal of modern physics C* (2021), 32(11), 2150144.
12. Abolfazl Ziaemehr and Alireza Valizadeh, "Frequency-resolved functional connectivity: Role of delay and the strength of connections", *Frontiers in Neural Circuits* (2021), 15, 608655.
13. Aref Pariz, Ingo Fischer, Alireza Valizadeh, and Claudio Mirasso, "Transmission delays and frequency detuning can regulate information flow between brain regions", *PLoS Computational Biology* (2021), 17 (4), e1008129.
14. Abolfazl Ziaemehr, Mina Zarei, Alireza Valizadeh, and Claudio Mirasso. "Frequency-dependent organization of the brain's functional network through delayed- interactions." *Neural Networks* (2020), 132, 155-165.
15. H Rezaei, Ad Aertsen, Arvind Kumar, and Alireza Valizadeh. "Facilitating the propagation of spiking activity in feedforward networks by including feedback." *PLoS Computational Biology* (2020), 16 (8), e1008033.
16. SE Hosseini, M Pooyan, A Valizadeh, A Moradi, "Dynamic Modeling of the Effectiveness of Third Wave Cognitive Behavioral Therapy and Antidepressants Drugs on Major Depressive Disorder" *Journal of research in psychological health* (2019), 12 (4), 16-27.
17. Madadi Asl, Mojtaba, Alireza Valizadeh, and Peter A. Tass. "Dendritic and axonal propagation delays may shape neuronal networks with plastic synapses." *Frontiers in physiology* 9 (2018): 1849.
18. Madadi Asl, Mojtaba, Alireza Valizadeh, and Peter A. Tass. "Propagation delays determine neuronal activity and synaptic connectivity patterns emerging in plastic neuronal networks." *Chaos: An Interdisciplinary Journal of Nonlinear Science* 28, no. 10 (2018): 106308.
19. Goodarzinick, Abdolreza, Mohammad D. Niry, Alireza Valizadeh, and Matjaž Perc. "Robustness of functional networks at criticality against structural defects." *Physical Review E* 98, no. 2 (2018): 022312.
20. Mojtaba Madadi-Asl, Alireza Valizadeh, and Peter A. Tass. "Delay-induced multistability and loop formation in neuronal networks with spike-timing-dependent plasticity." *Scientific reports* 8, no. 1 (2018): 1-15.
21. Moosavi, S. Amin, Afshin Montakhab, and Alireza Valizadeh. "Coexistence of scale- invariant and rhythmic behavior in self-organized criticality." *Physical Review E* 98, no. 2 (2018): 022304.
22. Pariz, Aref, Zahra G. Esfahani, Shervin S. Parsi, Alireza Valizadeh, Santiago Canals, and Claudio R. Mirasso. "High frequency neurons determine effective connectivity in neuronal networks." *NeuroImage* 166 (2018): 349-359.
23. Moosavi, S. Amin, Afshin Montakhab, and Alireza Valizadeh. "Refractory period in network models of excitable nodes: self-sustaining stable dynamics, extended scaling

- region and oscillatory behavior." *Scientific reports* 7, no. 1 (2017): 1-10.
24. Bolhasani, Ehsan, Yousef Azizi, Alireza Valizadeh, and Matjaž Perc. "Synchronization of oscillators through time-shifted common inputs." *Physical Review E* 95, no. 3 (2017): 032207.
 25. Asl, Mojtaba Madadi, Alireza Valizadeh, and Peter A. Tass. "Dendritic and axonal propagation delays determine emergent structures of neuronal networks with plastic synapses." *Scientific reports* 7 (2017): 39682.
 26. Esfahani, Zahra G., Leonardo L. Gollo, and Alireza Valizadeh. "Stimulus-dependent synchronization in delayed-coupled neuronal networks." *Scientific reports* 6, no. 1 (2016): 1-10.
 27. Bolhasani, Ehsan, and Alireza Valizadeh. "Stabilizing synchrony by inhomogeneity." *Scientific reports* 5, no. 1 (2015): 1-7.
 28. Zarepour, M., M. D. Niry, and A. Valizadeh. "Functional scale-free networks in the two-dimensional Abelian sandpile model." *Physical Review E* 92, no. 1 (2015): 012822.
 29. Bayati, Mehdi, Alireza Valizadeh, Abdolhossein Abbassian, and Sen Cheng. "Self-organization of synchronous activity propagation in neuronal networks driven by local excitation." *Frontiers in Computational Neuroscience* 9 (2015): 69.
 30. Sadeghi, Sadjad, and Alireza Valizadeh. "Synchronization of delayed coupled neurons in presence of inhomogeneity." *Journal of computational neuroscience* 36, no. 1 (2014): 55-66.
 31. Esfahani, Zahra Ghasemi, and Alireza Valizadeh. "Zero-lag synchronization despite inhomogeneities in a relay system." *PloS one* 9, no. 12 (2014).
 32. Bolhasani, Ehsan, Yousef Azizi, and Alireza Valizadeh. "Direct connections assist neurons to detect correlation in small amplitude noises." *Frontiers in computational neuroscience* 7 (2013): 108.
 33. Bayati, Mehdi, and Alireza Valizadeh. "Effect of synaptic plasticity on the structure and dynamics of disordered networks of coupled neurons." *Physical Review E* 86, no. 1 (2012): 011925.
 34. Valizadeh, Alireza. "Enhanced response of regular networks to local signals in the presence of a fast impurity." *Physical Review E* 86, no. 1 (2012): 016101.
 35. Hashemi, M., A. Valizadeh, and Y. Azizi. "Effect of duration of synaptic activity on spike rate of a Hodgkin-Huxley neuron with delayed feedback." *Physical Review E* 85, no. 2 (2012): 021917.
 36. Azizi, Y., and A. Valizadeh. "Rotating Bose-Einstein condensate in an optical lattice: Formulation of vortex configuration for the ground state." *Physica B: Condensed Matter* 406, no. 4 (2011): 1017-1021.
 37. Azizi, Y., and A. Valizadeh. "Rectified motion of a Bose-Einstein condensate in a horizontally vibrating shallow optical lattice." *Physical Review A* 83, no. 1 (2011): 013614.
 38. Valizadeh, A., M. R. Kollahchi, and J. P. Straley. "Single phase-slip junction site can synchronize a parallel superconducting array of linearly coupled Josephson junctions." *Physical Review B* 82, no. 14 (2010): 144520.
 39. Valizadeh, A., Kh Jahanbani, and M. R. Kollahchi. "Dynamics of a Bose-Einstein condensate in a horizontally vibrating shallow optical lattice." *Physical Review A* 81, no. 2 (2010): 023616.
 40. Valizadeh, A. R., M. R. Kollahchi, and J. P. Straley. "Dynamics of coupled Josephson junctions in an asymmetric triangular single plaquette." *Iranian Journal of Physics Research* 9, no. 1 (2009): 112-115.

41. Valizadeh, A., M. R. Kolahchi, and J. P. Straley. "On the origin of fractional shapiro steps in systems of josephson junctions with few degrees of freedom." *Journal of Nonlinear Mathematical Physics* 15, no. sup3 (2008): 407-416.
42. Valizadeh, A., M. R. Kolahchi, and J. P. Straley. "Fractional Shapiro steps in a triangular single-plaquette Josephson-junction array." *Physical Review B* 76, no. 21 (2007): 214511.

Book Chapters

- 1- Alireza Valizadeh and Mojtaba Madadi-Asl, "Synaptic Plasticity During Brain Development: Implications for Therapeutic Reorganization of Neural Circuits" *Encyclopedia of child and adolescent*, Elsevier (2022).

Conferences and meetings

Selected Invited talks

- Brain Oscillations and Information transfer in neural circuits
Symposium on Dynamics of Neural networks, Sharif University of Technology, 2020
- What determines functional and effective Connectivity?
8th Basic and Clinical Neuroscience Congress, Iran University of Medical sciences, 2019
- Synaptic Plasticity and the emergent structures in neural circuits
Computational neuroscience Symposium, Tehran University, 2019
- Fasters are leaders: frequency mismatch determines direction of information transfer in neural circuits
7th Basic and Clinical Neuroscience Congress, Iran University of Medical sciences, 2018
- Brain Oscillations: Mechanism and function
4th conference of Biological Sciences
Institute for Advanced Studies in Basic sciences, 2018
- Phase space of the excitatory and inhibitory networks
25th conference of condensed matter physics, Institute for Advanced Studies in Basic sciences, 2018
- Frequency Mismatch determines effective connectivity in brain circuits
Bernstein Conference, Gottingen 2017
- Brain oscillations and information transfer in brain networks 10th Statistical physics conference, Shiraz 2017
- Role of transmission delay in the generation of brain oscillations
IFISC seminars, Mallorca 2016

Organization of meetings

- Computational Neuroscience workshop
Institute for Advanced Studies in Basic Sciences, Zanjan 2015
- Workshop on Brain Oscillations and Information transfer in Neural Circuits
Bernstein Conference, Gottingen 2017
- Iranian-German workshop on Theoretical and Computational Neuroscience, in association with Bernstein Center Freiburg
Tehran University, Tehran 2018
- Workshop on The Physics of Neural Systems,
Sharif University of Technology, Tehran 2020
- 26th IASBS Condensed matter conference,
Institute for Advanced Studies in Basic Sciences, Zanjan 2021

International Collaborations

- **Ad Aertsen**, Bernstein Center Freiburg for Computational Neuroscience
2016-now
- **Arvind Kumar**, Computational Brain Science Lab, KTH
Sweden 2016-now
- **Peter Tass**, Department of Neurosurgery, Stanford University Medical School
2015-now
- **Claudio Mirasso**, Instituto de Física Interdisciplinar y Sistemas Complejos | IFISC Universitat de les Illes Balears, Spain
2014-now
- **Leonardo Gollo**, Queensland Institute of Medical Research,
Australia 2015-2016
- **Sen Cheng**, Ruhr-Universitat Bochum, Research department of Neuroscience
2013-2015

Editorial and Review activity

Member of editorial board
Journal: Scientific reports
Section: Theoretical and Computational neuroscience
From March 2017

Member of Editorial Board
Journal: Frontiers in Physiology
Section: Computational Biology
From November 2020

Member of Editorial Board
Journal: Frontiers in Network Physiology
Section: Computational Biology
From June 2021

Peer review activity:

Journals: Nature schizophrenia, Cerebral cortex, Physical review E, PLoS One, PLoS Computational Biology, Scientific reports, Frontiers in Computational Neuroscience, Frontiers in Systems Neuroscience, Cognitive Neurodynamics, ENeuro, Nonlinear Dynamics

Honors

- Invited member of Iranian Academy of Sciences, Basic Science Department
2019-now

Funding

- Title of project: Effect of Injection of Dopacels in Parkinsonian patients: Modeling study
Name of funding organization: Cognitive Sciences and Technologies Council
Status: Ongoing
Role on Project: Principal Investigator
Period of Grant Award: 2020-2022
- Title of project: Mechanisms of Information Transfer in Brain Networks
Name of Funding Organization: Institute for Research in Fundamental Sciences
Status: Ongoing
Role on Project: Principal Investigator
Period of Grant Award: 2017-2021
- Title of Project: Resting state activity of the human cortex
Name of Funding Organization: Cognitive Sciences and Technologies Council
Status: Ongoing
Role on Project: Principal Investigator
Period of Grant Award: 2018-2020
- Title of Project: Mechanisms of generation of brain Oscillations
Name of Funding Organization: Cognitive Sciences and Technologies Council
Status: Completed Research
Role on Project: Principal Investigator
Period of Grant Award: 2015-2017

Mentorship and Student Supervision

PhD Students

- 2019-now, Saeed Taghavi
- 2020- now, Mohammad Danesh,
- 2018- now, Nariman roohi,
- 2018- now, Ali Ghadiri
- 2017-2022, Fatemeh Bahadori
Thesis: “Design of efficient stimulation protocol for the suppression of the beta oscillations in the Basal Ganglia”
- 2018-2022, Atefeh Asadi
Thesis: “Effect of inter-regional interaction delay in the emergence of beta oscillations in Basal Ganglia”
- 2015-2020, Hedyeh Rezaei
Thesis: “Role of feedback connections in signal transmission in modular neural networks”
- 2016-2020, Abolfazl Ziaemehr
Thesis: “Role of delays in functional connectivity in Brain Networks”
- 2014-2019, Reza Godarzinick
Thesis: “Resilience of the networks of excitable components at critical point to defects”
- 2013-2018, Aref Pariz
Thesis: “Effect of heterogeneity in information transfer in neuronal networks”
- 2014-2018, Mojtaba Madadi-Asl
Thesis: “Propagation delays determine the effects of synaptic plasticity on the structure and dynamics of neuronal networks”
- 2011-2016, Ehsan Bolhasani
Thesis: “Correlation transfer in heterogeneous neuronal networks”
- 2012-2016, Zahra Ghasemi Esfahani
Thesis: “Synchronization in delayed coupled neuronal networks”

Graduated MSc Students

- 2019-2021, Nosrat Mahammadi
Thesis: “Role of synaptic time constants in the instantaneous modulation of period and amplitude of brain’s gamma oscillations”
- 2018-2021, Zeinab Kooheima
Thesis: “Role of delay in the coherence and frequency of the gamma oscillations in inhibitory networks”
- 2018-2020, Mohammad Danesh
Thesis: “A model for learning temporal patterns by a network of spiking neurons with STDP”
- 2017-2019, Faeze Ashoori
Thesis: “A study on the role of brain stimulation in the control of beta activity in rodent’s brain”
- 2017-2019, Zahra Sheykhali,
Thesis: “Response of the synchronous neuronal networks to local inputs”
- 2016-2018, Zahra Yadyasar
Thesis, “Phase-locking of Type-I and type-II neurons to periodic inputs”
- 2016-2018, Tahmineh Farahmandi

- Thesis: “Learning repeating patterns by a single neuron through STDP”
- 2015-2017, Peyman Koohsari
Thesis: “Study of effect of delay in the emergence of Frustration in Neuronal Networks”
- 2015-2017, Soodabeh Azhdar
Thesis: “Bootstrap percolation in Neuronal Networks”
- 2014-2016, Soroush Malek
Thesis: “A model for temporal feature binding”
- 2014-2016, Zahra Nasiri
Thesis: “Emergent structure in neuronal networks through triplet-based STDP”
- 2013-2015, Mina Kheirkhah
Thesis: “A study on the origin of gamma rhythms in cortical networks”
- 2013-2015, Shervin Sadat Parsi
Thesis: “Effect of high frequency neurons in information transfer in neuronal networks”
- 2013-2015, Abdollah Ahmadinejad
Thesis: “A study of the locking of outer hair cells to periodic external signals”
- 2013-2015, Mohamad Ali Mir Ramezani
Thesis: “Simulation of the avian system for localization of sound”
- 2012-2014, Sadjad Sadeghi
Thesis: “Effects of inhomogeneity in the synchronization of delayed coupled neurons”
- 2010-2013, Mehdi Bayati
Thesis: “Emergent structure of disordered neuronal networks in presence of spike timing dependent plasticity”
- 2011-2014, Saeedeh Khatami
Thesis: “A study on spontaneous oscillations in muscle fibers”
- 2010-2012, Meysam Hashemi
Thesis: “Effect of feedback loops on the dynamics of neuronal oscillators”
- 2011-2013, Bahman Pahlevan
Thesis: “Josephson effect in Bose-Einstein condensates”

Teaching Experiences

Graduate special topics

1. Dynamical Systems in Neuroscience
2. Stochastic methods in Neuroscience
3. Theoretical Neuroscience
4. Neural Modeling
5. Basic Neuroscience
6. Complex Networks

Graduate Physics courses

1. Advanced Quantum Mechanics
2. Electrodynamics

Undergraduate Physics courses

1. Mathematical Physics
2. Fundamentals of physics
3. Electromagnetism
4. Quantum physics

Administrative experience

- 2012-now, Founder and director of Theoretical Neuroscience Lab, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
- 2009-now, Head of the sports office
Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
- Chair of the physics department 2011-2012
Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
- 2018-2019, Vice-chair of School of Cognitive Sciences
Institute for Research in Fundamental Sciences (IPM)

Other skills and qualifications

- Volleyball (experience in Professional level)
- Persian Traditional Music (vocal, Master level)