



## CURRICULUM VITAE KHOSRO TAJBAKHS

### PERSONAL

- Citizenship                      Iranian
- Place of Birth                      Iran
- Marital Status                      Married

### Position

- Associate Professor                      2011-Now, Vice Dean, Faculty of Mathematical sciences, Tarbiat Modares university, Tehran, Iran
- Director of Planning, Development and Review                      2022-Now, Tarbiat Modares University
- Post-Doctoral                      2010 Chungnam National University (CNU), South Korea

### EDUCATION

- PhD in Mathematics                      CNU, South Korea
- MSc in Mathematics                      University of Tehran, Iran
- BSc in Mathematics                      Shiraz University, Iran

### PhD Thesis

- Hyperbolicity of Homoclinic Classes via Tracing Properties. Supervisor: Keonhee Lee.

### MSc Thesis

- Compactifications, March 2002. Supervisor: Massoud Sabbaghan.

### AWARDS

- Post-Doctoral Fellowship, Bk21 (South Korea), 2010- 2010
- PhD Fellowship, Bk21 (South Korea), 2006- 2010

### VISITS

- Beihang university, Beijing, China. July-August 2023.
- University of Warwick, UK. July-August 2017
- ICTP, Trieste Italy, October 2013.
- Chungnam National University, Daejeon, Korea. August 2012.
- Hanoi University of Science, Hanoi, Vietnam. October 2009.
- Hanoi University of Science, Hanoi, Vietnam. February 2007.
- Souchu University, China. January 2008.

## INTERESTS

Geometry of Dynamical Systems, Entropy of surface diffeomorphisms, Anosov endomorphisms, Exchange maps.

## Visitors

Dr. Mahmoud Sofbaf Sarjamee has visited me from 2020 Jun to 2021 Jun during his sabbatical leave.

## Post-doctoral

Dr. Nikita Begun, Berlin University, 2019 March- 2012 March.

## Graduate Students

1. Fardin Amini, Partially Hyperbolic Sets with Positive measure, M.Sc. Thesis, Tarbiat Modares University, Tehran, 2014
2. Robab Noori, Bifurcations of Random Circle Diffeomorphisms, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2014
3. Majid Hasanali, Shadowing for Action of Some Groups, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2014
4. Elham sadegh Daghighi, Diffeomorphisms with Lipschitz Shadowing Property, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2014
5. Nasrin Safavi, Robust Minimality of Iterated Function Systems with Two Generators, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2014
6. Zahra Hajirabie, Region of Instability for Area Preserving Generic Diffeomorphisms of Surfaces, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2015
7. Maryam Elyasi, Diffeomorphisms with Various Limit Shadowing Properties, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2015
8. Samira Rabiee, Iterated Function Systems, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2015
9. Nilofar Kiamari, Lorenz Attractors of Flip Bifurcations, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2015
10. Samaneh sangi, Iterated Function Systems, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2015
11. Ebrahim saberi, On the Question of Ergodicity for Minimal Group Actons on the Circle, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2015
12. Bahman Taherkhani, Transformation Semigroups with Phase Semigroups Arised from Generalized Shift, PhD Dissertation, Tarbiat Modares University, Tehran, 2016
13. Shayan Alikhanloo, Topological and Ergodic Properties of Partially Hyperbolic Diffeomorphisms, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2016
14. Seyyed Mehdi Nemati, Ergodicity of Continuous Maps on Compact manifolds, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2017
15. Habibe Pourmand,  $C^1$ -Interior Measure Expansive Diffeomorphisms, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2017
16. Armaghan Hajipour, *Markov* structure for zooming sets, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2018
17. **Seyed Mohsen Moosavi, *Anosov Endomorphisms*, PhD. Dissertation, Tarbiat Modares University, Tehran, 2018**
18. Neda Pazooki, *Transfer Operators for Expanding maps*, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2018

19. Mohadeseh Moeini, *Resonances for hyperbolic maps*, M. Sc. Thesis, Tarbiat Modares University, Tehran, August 2018.
20. Soroush Kazemi, *non-trivial resonances of Anosov diffeomorphisms*, M. Sc. Thesis, Tarbiat Modares University, Tehran, 2019
- 21. Saeed Azimi, Topology of pre-images under Anosov Endomorphisms. PhD. Dissertation, Tarbiat Modares University, Tehran, 2020**
- 22. Fatemeh Attarzadeh, Measure of maximal entropy of dynamical systems. PhD. Dissertation, Tarbiat Modares University, Tehran, 2020**

## RESEARCH

- Role of time delay in stability of a tritrophic competitive model. Preprint.
- Smooth TA\_ Maps with robust shadowing are Axiom A. To appear in *Journal of Dynamical and Control Systems*
- Dynamics of Systems with a Discontinuous Hysteresis Operator and Interval Translation Maps, *Axioms*, 10(80), 2021
- Specification properties on uniform spaces, *Journal of Dynamical and Control Systems*, (2021) 27:321–333
- Measure of maximal entropy for star multimodal maps, *CMS*, vol. **34**, no. **1** (2021), 1-8.
- On the density of pre-orbits under linear toral endomorphisms, *Vestnik St. Petersburg University, Mathematics*, 53 (2020), No. 3, 243–247.
- О плотности предорбит линейного эндоморфизма тора, *Vestnik Sankt-Peterburgskogo Universiteta: Matematika, Mekhanika, Astronomiya*. 53 (2020), No. 3, 369–376.
- Limit Average Shadowing and Dominated splitting, *Mathematical Researches*. 6 (2020), no. 2, 157-168
- Classification of special Anosov endomorphisms of nil-manifolds, *Acta Math. Sin.* 35 (2019), no. 12, 1871–1890.
- Robust special Anosov endomorphisms, *Commun. Korean Math. Soc.* 34 (2019), no. 3, 897–910.
- On chromatic numbers of two extensions of planar graphs, *Acta Mathematica Vietnamica* (2019) 44: 493–500.
- Topology of pre-images under Anosov endomorphisms, arXiv:1702.08167[math.DS]
- Minimum edge cuts of distance-regular and strongly regular digraphs, the electronic journal of combinatorics 24(4) (2017), #P4.2
- Asymptotic measure expansive diffeomorphisms, *J. Math. Anal. Appl.* 435 (2016) 1682–1687
- Dynamical Systems with Specification, *Journal of the Chungcheong Mathematical Society* 28 (1)(2015), 103-108
- Hyperbolicity of chain transitive sets with limit shadowing, *Bull. Korean Math. Soc.* 51 (2014), no. 5, 1259-1267
- Decomposing hypergraphs into  $k$ -colorable hypergraphs. *Trans. Comb.* 3 (2014), no. 2, 31–33. 05C15 (05C65)
- Diffeomorphism with  $L_p$ -shadowing property, *Acta mathematica Sinica*, 27 (2011), 19 – 28
- *Hyperbolicity of  $C^1$ -stably shadowing homoclinic classes*, *Trends in Mathematics*, 8 (2008), 79-82.
- *The spectral characterization of graphs of index less than 2 with no  $Z_n$  as a component*, *Ars Combin.* 94 (2010), 135 - 145.
- *Starlike trees are determined by their Laplacian spectrum*, *Linear Algebra Appl.* 422 (2007), no. 2-3, 654-658.

## TALKS

- Topology of pre-images under Anosov endomorphisms, Department of mathematics, Peking University, China, September 2023.

- Alpha limit sets for endomorphisms, Department of mathematics, Beihang University, Beijing, China, July 2023.
- On topology of pre-orbits under non-injective endomorphisms, International Conference on recent trends in mathematica, Korea, August 2020.
- Density of the per images of the set under Anosov endomorphisms, Winter school and conference on dynamical systems, Korea, January 2019.
- Hyperbolic Dynamical Systems, Tabriz University. Tabriz, Iran. August 2018.
- Topology of pre-images under Anosov endomorphisms , YRM 2017 Conference. Canterbury, UK. August 2017.
- Asymptotic measure expansive, ICM satellite Conference. Daejeon, South Korea, August 2014.
- Hyperbolic structure of dynamical systems
  - 2012 Workshop on Dynamical Systems & Related Topics, Chungnam National university, Daejeon , South Korea, August 23(Thu) – 24(Fri), 2012.
- Diffeomorphisms satisfying the lipschitz shadowing property,
  - Chungnam National university, Daejeon , South Korea, August 10, 2012.
- Hyperbolicity of Homoclinic classes,
  - Tarbiat Modares University, Tehran, Iran November(2010).
- Limit Average Shadowing Diffeomorphisms,
  - Korean Mathematical Society (JCMS) Conference, Chungnam National university, Daejeon , South Korea, May15, 2010.
- Shadowable Chain Transitive sets and Specific Sets for Vector Fields,
  - Korean Mathematical Society Conference, Chungnam National university, Daejeon , South Korea, April 24-25, 2010.
- $C^1$ -Generic Diffeomorphisms with Specification Property,
  - Joint meeting of the Korean Mathematical Society and the American Mathematical Society, Seoul, Korea, December 16 - 20, 2009.
  - International Workshop on Differential and Difference Equations: Theory, Numerics and Applications, Hanoi and Halong, Hanoi University of Science, Hanoi, Vietnam October, 29 – 31, 2009.
  - NIMS Hot Topics Workshop on Measurable and Topological Dynamical Systems in Asia, Ajou University, Suwon, Korea, June 18-20, 2009.
- Hyperbolicity of  $C^1$ -stably Shadowing Homoclinic classes,
  - International Workshop on Dynamical Systems and Related Topics, Chungnam National University, Daejeon, Korea, August 19-22, 2008.
- $C^1$ -Persistently Inverse Shadowable Diffeomorphisms,
  - The Korean Mathematical Society workshop, Daejeon, Korea , March 2008.
  - Workshop on Dynamical Systems & Related Fields, Ajou University, Suwon, Korea, February 18-19, 2008.
  - Joint Seminar on Dynamical Systems, Soochow University, Soochow, China, January 21-24, 2008.
- $\Omega$ -Stability of Diffeomorphisms with Various Shadowing on Non-Wandering sets,
  - 2007 CNU Workshop on Nonlinear Analysis and Its Application, Chungnam National University, Daejeon , Korea, August 24-25, 2007.
- $\Omega$ -Stability of Diffeomorphisms with Inverse Shadowing on Non-Wandering sets,
  - 2007 VNU and CNU workshop on Analysis, Differential Equations, and Dynamical Systems, Hanoi University Of Science, Hanoi, Vietnam. February 02-03, 2007.

## CONFERENCES

- TMU – SPB School & conference on dynamical systems, 09-12 March 2021, Tehran, Iran
- infinite dimensional dynamical systems, Vietnam-Korea, January 14-15, 2021

- International Conference on recent trends in mathematics, Korea, August 13-14, 2020
- Winter school and conference on dynamical systems, Korea, January 20-26, 2019. Korea
- TMU-ICTP School & conference in dynamical systems and ergodic theory, 15-20 May 2018, Tehran, Iran.(Share with ICTP)
- School on ergodic theory & dynamical systems, 13-17 February 2017, TMU, Tehran, Iran.
- Workshop on Geometry and dynamical systems, 27-28 February 2016, Tarbiat Modares University, Tehran Iran.
- ICTP, 2016, School on Algebraic, Geometric and Probabilistic Aspect of Dynamical Systems and Control Theory- Trieste, Italy.
- ICTP, 2015, School and Conference on Ergodic theory and Dynamical systems- Trieste, Italy.
- ICM 2014 Korea, 13 August-21 August 2014, Seoul, Korea.
- ICTP-SISSA-Moscow School on Geometry and Dynamics, The Abdus Salam International Centre for Theoretical Physics, 3 June-14 June 2013, Miramare - Trieste, Italy.
- Korean Mathematical Society (JCMS branch), Chungnam National university, Daejeon, South Korea, May 15, 2010.
- Korean Mathematical Society Conference, Chungnam National university, Daejeon , South Korea, April 24-25, 2010.
- Joint meeting of the Korean Mathematical Society and the American Mathematical society, Seoul, Korea, December 16 - 20, 2009.
- International Workshop on Differential and Difference Equations: Theory, Numerics and Applications, , Hanoi and Halong, Hanoi University of Science, Hanoi, Vietnam, October 29 - 31, 2009.
- NIMS Hot Topics Workshop on Measurable and Topological Dynamical Systems in Asia, Ajou University, Suwon, Korea, June 18-20, 2009.
- International Workshop on Dynamical Systems and Related Topics, Chungnam National University, Daejeon, Korea, August 19-22, 2008.
- Korean Mathematical Society Conference, Korean Advanced Institute of Science and Tecnology (KAIST), Daejeon , South Korea, October 20-21, 2007.
- 2007 CNU Workshop on Nonlinear Analysis and Its Application, Chungnam National University, Daejeon, South Korea, August 24-25, 2007.
- The 60th Anniversary of the Korean Mathematical Society, Seoul National University, Seoul, Korea, October 27-29, 2006.
- International Workshop on Dynamical Systems and Related Topics, Pusan National University, Busan, South Korea, August 03-05, 2006.
- Korean Mathematical Society Conference, Busan, April 2006.
- International Workshop on Computer Vision, IPM, Tehran, Iran, April 26-30, 2004.
- International Workshop on Combinatorics, Linear Algebra and Graph Coloring, IPM, Tehran ,Iran August 9-14, 2003.

## TEACHING EXPERIENCES

### Teaching at Tarbiat Modares University

- Differentiable dynamical systems
- Topics in smooth dynamical systems
- Real analysis 2011, MSC
- Dynamical systems 2012, MSC and PhD
- Smooth dynamical System 2012- now, MSC and PhD
- Ergodic Theory 2012-now, MSC and PhD
- Geometry of Dynamical Systems, MSC and PhD

- Smooth Ergodic Theory, MSC and PhD

## Teaching

- Differential Dynamical systems, Chungnam National University, 2010.
- Differential Dynamical systems Seminars, Chungnam National University, 2010-Now.
- Dynamical systems weekly seminars, Chungnam national University, 2006-2009.
- Set Theory, Chungnam National University, 2009.
- Advanced Engineering Mathematics, Imam Ali University, Tehran, 2005.
- Calculus I and statistics, Jame Elmi Karbordi, Tehran, 2005.
- Calculus , Azad University(Yadegar Imam), Tehran, 2004-2005.
- Calculus I , Imam Husain University, Tehran, 2004.
- Calculus , Pyam Nour University, Tehran, 2003.

## Teaching Assistantship

- Topology II, CNU (Chungnam National University). Fall 2008
- Topology I, CNU (Chungnam National University). Fall 2006
- Linear Algebra, CNU (Chungnam National University). Spring 2007
- Calculus II, University of Tehran. Spring 2001
- Calculus II, Shiraz University. Spring and Fall 1997
- Linear Algebra, Shiraz University, Spring 1998

## Expositions

- Topology I, II, Chungnam National University, 2008, 2006.

## Organizer:

- TMU – SPB School & conference on dynamical systems, 09-12 March 2021, Tehran, Iran
- TMU-ICTP School & conference in dynamical systems and ergodic theory, 15-20 May 2018, Tehran, Iran.(Share with ICTP)
- School on ergodic theory & dynamical systems, 13-17 February 2017, TMU, Tehran, Iran.
- Workshop on Geometry and dynamical systems, 27-28 February 2016, Tarbiat Modares University, Tehran Iran.
- **ICM**, Short Communications, **SC09-13, 2014, ICM, Korea**

## LANGUAGES

- Persian, English, Beginner in Korean, LATEX.

Faculty of Mathematical Sciences  
Tarbiat Modares University  
Tehran, Iran, 14115-134  
Khosro Tajbakhsh  
Email: [khtajbakhsh@modares.ac.ir](mailto:khtajbakhsh@modares.ac.ir) [tajbakhshat@gmail.com](mailto:tajbakhshat@gmail.com)  
Phone: +982182883499, +989127181284  
Fax: +982182883493