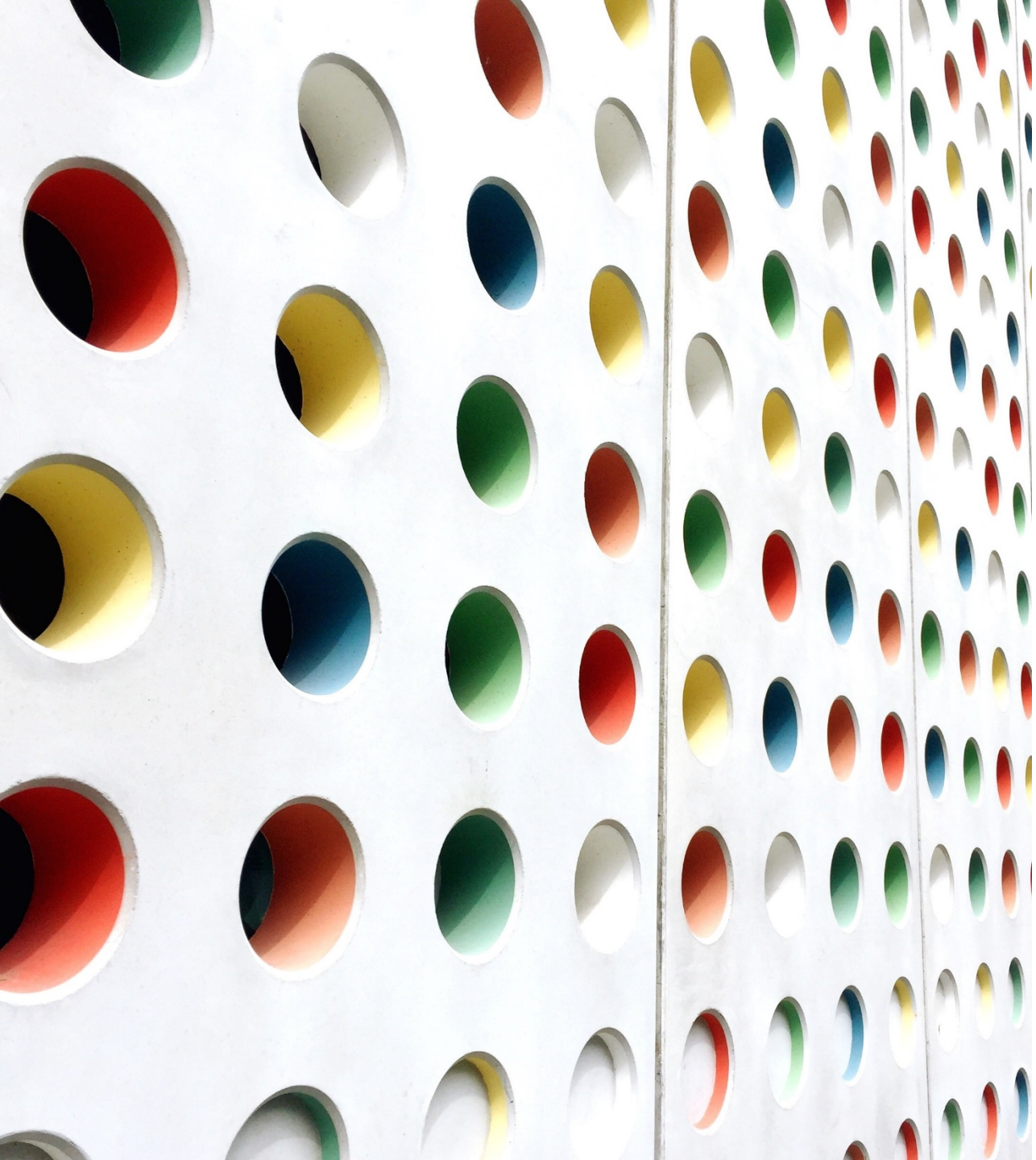


DFG 2020
BECAUSE RESEARCH MATTERS

Amirkabir University of Technology
(Tehran Polytechnic)

AUT - DFG

Joint Matchmaking Webinar

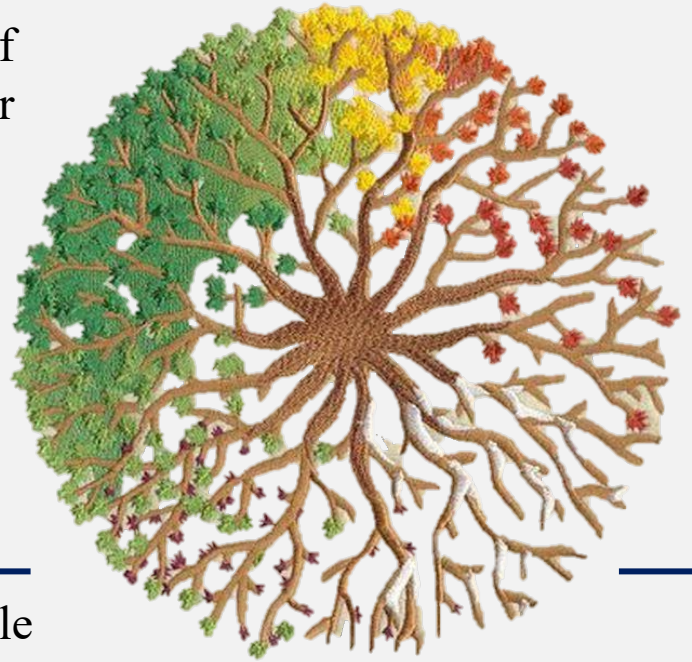
April 2021

Research Group CV:

Dendritic Groups

Dr. Somaye Akbari

Assistant Professor, Department of Textile Engineering, Amirkabir University of Technology (Polytechnic)



Mohammad Hassan Kanani-Jazi

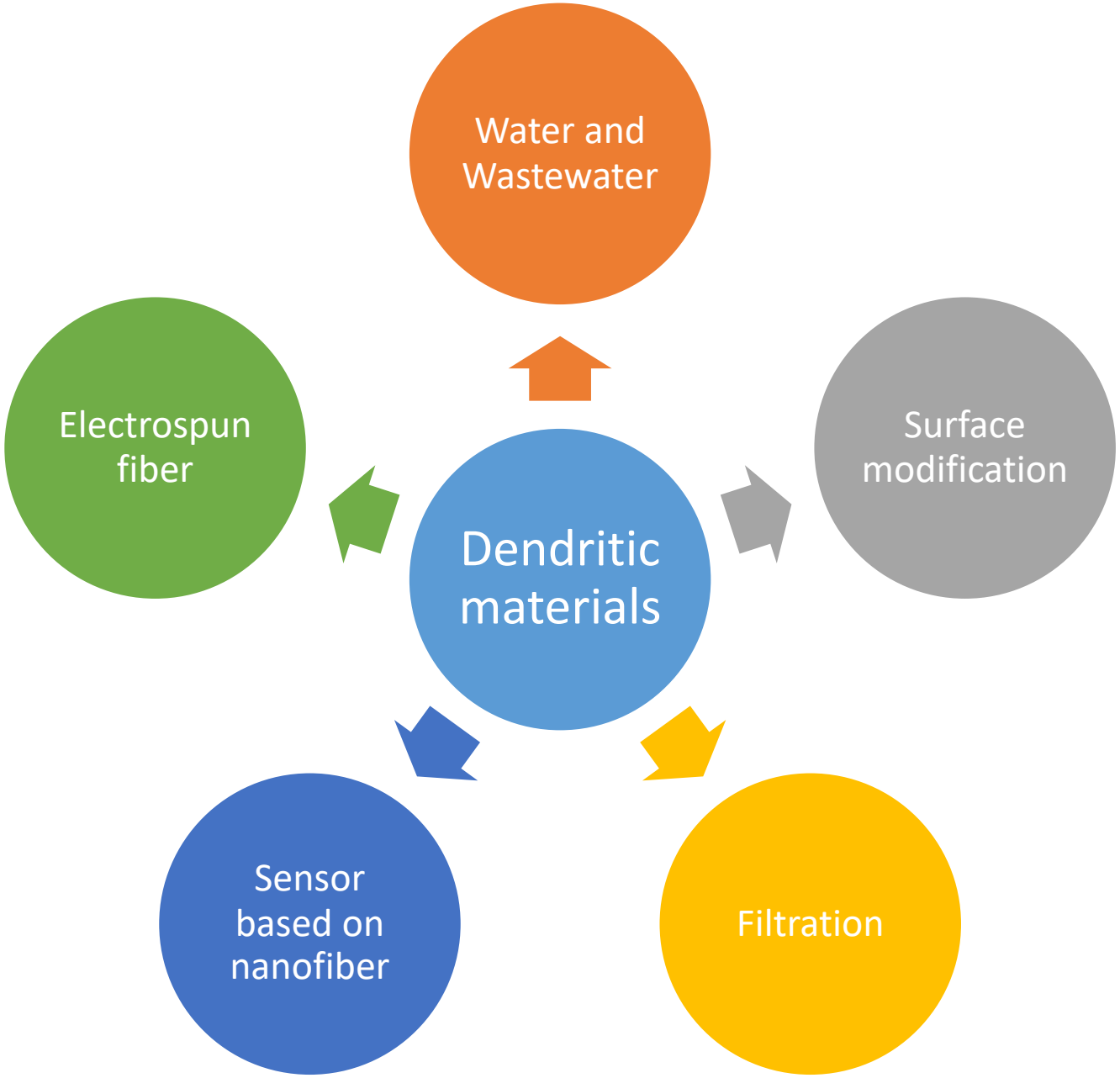
Ph.D. candidate, Department of Textile Engineering, Amirkabir University of Technology (Polytechnic)
Head of waste water group

Seyede Tahere Rouhani

Ph.D. candidate, Department of Textile Engineering, Amirkabir University of Technology (Polytechnic)
Head of Sensor based electrospun group

Rasoul Shabanloo

M.Sc degree, , Department of Textile Engineering, Amirkabir University of Technology (Polytechnic)
Head of active layer face mask group


Water and Wastewater
Electrospun fiber
Surface modification
Dendritic materials
Sensor based on nanofiber
Filtration

Research Group Interest:

- Polymer Chemistry
- Dendritic Compound: synthesis, characterization, application
- Surface modification of mineral, fiber, film by dendritic material
- Electrospun fiber
- Organic/Inorganic Electrospun Nanofibers
- Removal of Pollutions from Water Environment and Air by dendritic material
- Sensor based on nanofiber

Group Research/Industrial Projects:

1. Development of functionalized electrospun nanocomposite membrane using dendritic polymers (Industrial project between Poland/UBC Canada).
2. Research & Development and Technical Collaboration Agreement :Surface modification of thin film composite polyamide membrane by amine-terminated dendritic polymers for enhancement of textile wastewater treatment (Industrial project China).
3. Active layer based on release of essential oils /electrospun mats / amine terminated dendritic groups in face mask (Industrial project NanoKhavar Innovative Company).
4. Surface modification of medical gauzes by dendritic application (Industrial product).
5. Electronic nose (E-nose) fabrication for fragrant quantity measurement (Industrial project Zarin Roya company).

Group Supervised Labs:

Water and Wastewater Laboratory

Dr. Somaye Akbari

Assistant Professor, Department of Textile Engineering, Amirkabir University of Technology (Polytechnic)

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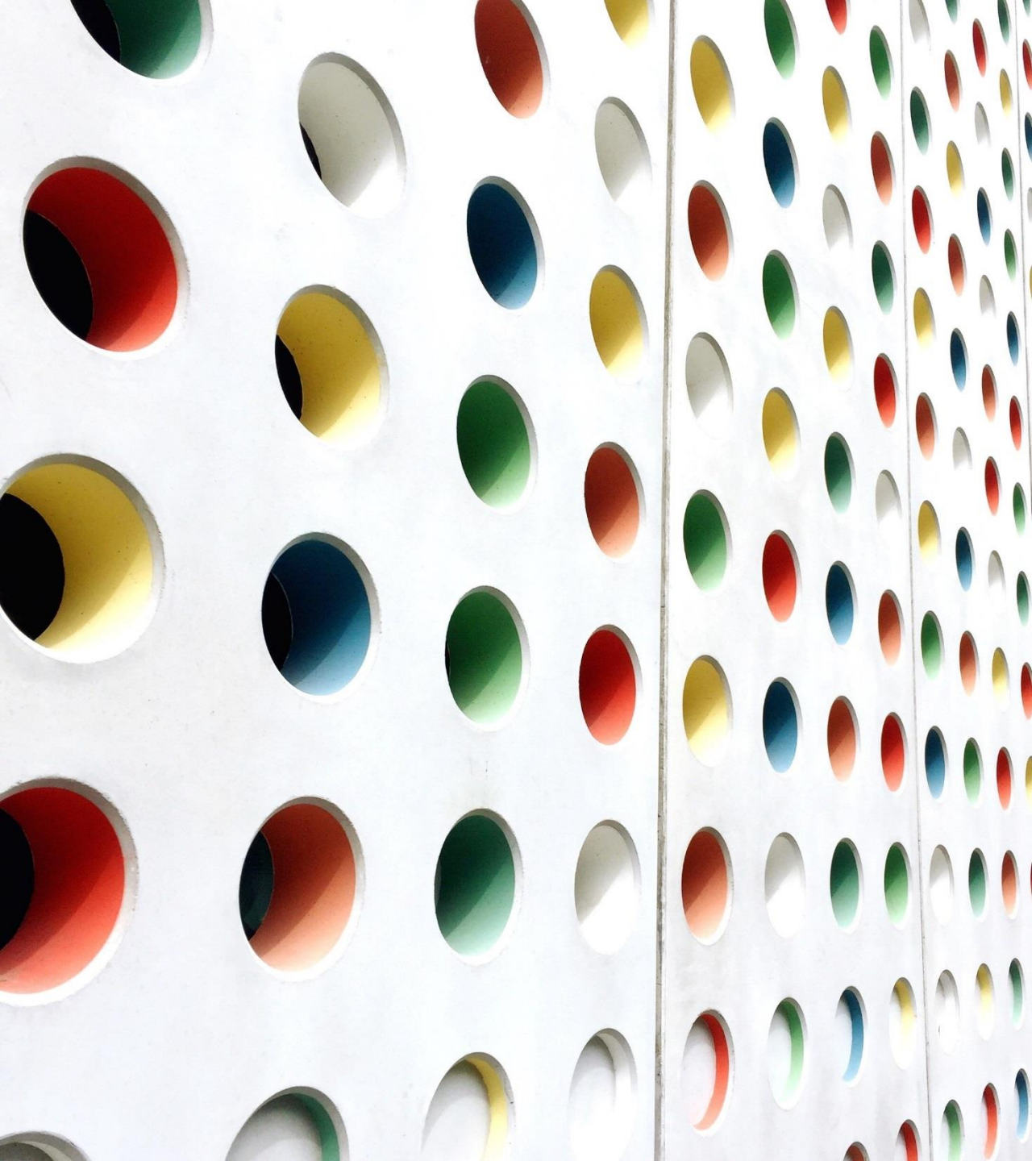

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Research Group CV

Education

2017 Post-Doctoral Research, Polymer Engineering, Amirkabir University of Technology (Tehran Polytechnic)
2016 Ph.D., Polymer Engineering, Amirkabir University of Technology (Tehran Polytechnic)
2009 M.Sc., Polymer Engineering, Amirkabir University of Technology (Tehran Polytechnic)
2007 B.Sc., Polymer Engineering, Amirkabir University of Technology (Tehran Polytechnic)

Professional experiences

Assistant professor, Sep. 2017-Present (Ongoing)
Polymer Engineering Department, Faculty of Chemical Engineering, **Tarbiat Modares University**
Courses: **Advanced Physical Chemistry of Polymers** (MSc), **Adhesion** (MSc), **MATLAB Programming in Polymer Engineering** (Workshop for post-graduate students)
Instructor, Sep. 2016-Sep. 2017
Polymer and Color Engineering Department, **Amirkabir University of Technology**
Course: **Physical Chemistry of Polymers Laboratory** (BSc)
Instructor, Sep. 2016-Feb. 2018
Engineering Faculty, Science and Research Branch of **Islamic Azad University**
Courses: **Interface Engineering in Polymer Nanocomposites** (MSc), **Mathematics in Polymer Engineering** (BSc), **Physical and Mechanical Properties of Polymers** (BSc)

Honors

Recipient, Top academic graduate, Iran's National Elites Foundation, 2018
Recipient, Outstanding bachelor student, Amirkabir University of Technology, 2007

Research Group Interest

- Phase behavior and morphology of polymer blends and nanocomposites
- Modelling of structure-properties relationship in polymer nanocomposites
- Adhesion and adhesives
- Polymer (nano)colloids

Group Supervised Labs

Polymers Laboratory

- Emulsion polymerization reactors
- Temperature and humidity control chamber
- Universal testing machine
- Optical microscope
- Contact angle measurement
- Dynamic mechanical thermal analysis
- Mercury porosimeter

Group Contact Information

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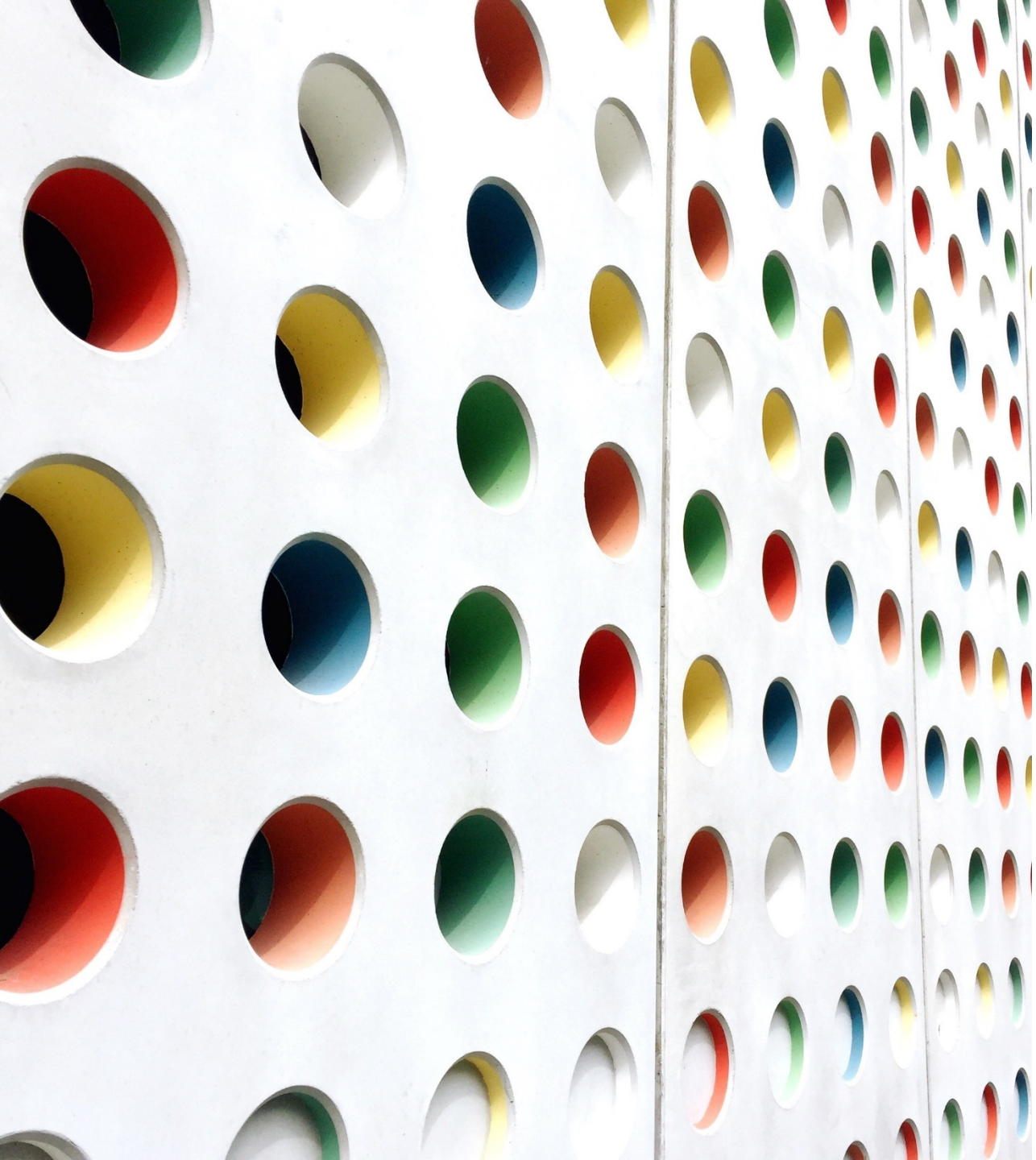
- **Homepage:** https://www.modares.ac.ir/~ghasemirad



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Research Group CV

Group Leader: Mahdi Mashkoori
Ph.D. in (2015), *Sharif University of Technology*, Iran
Postdoc researcher (2015-2019), Uppsala University, Sweden

Master Student : Reza Beynasri
Thesis: Transport properties of borophene and impurity effects

Master Student : Elham Einabadi
Thesis: Machine learning method for determining of optical material with a proper property

Research Group Interest

1. Electronic transport in 2D materials
2. Novel physics of Dirac and Weyl Materials
3. Topological Superconductivity in 1D and 2D systems
4. Impurities and defects in nanomaterials
5. Machine Learning for material discovery

Group Research/Industrial Projects

1- Topological superconductivity in high T_c Superconductors
2- Non-magnetic impurity chains in $Fe\ Se$
3- ML technique for discovering materials with interesting optical properties

Group Contact Information

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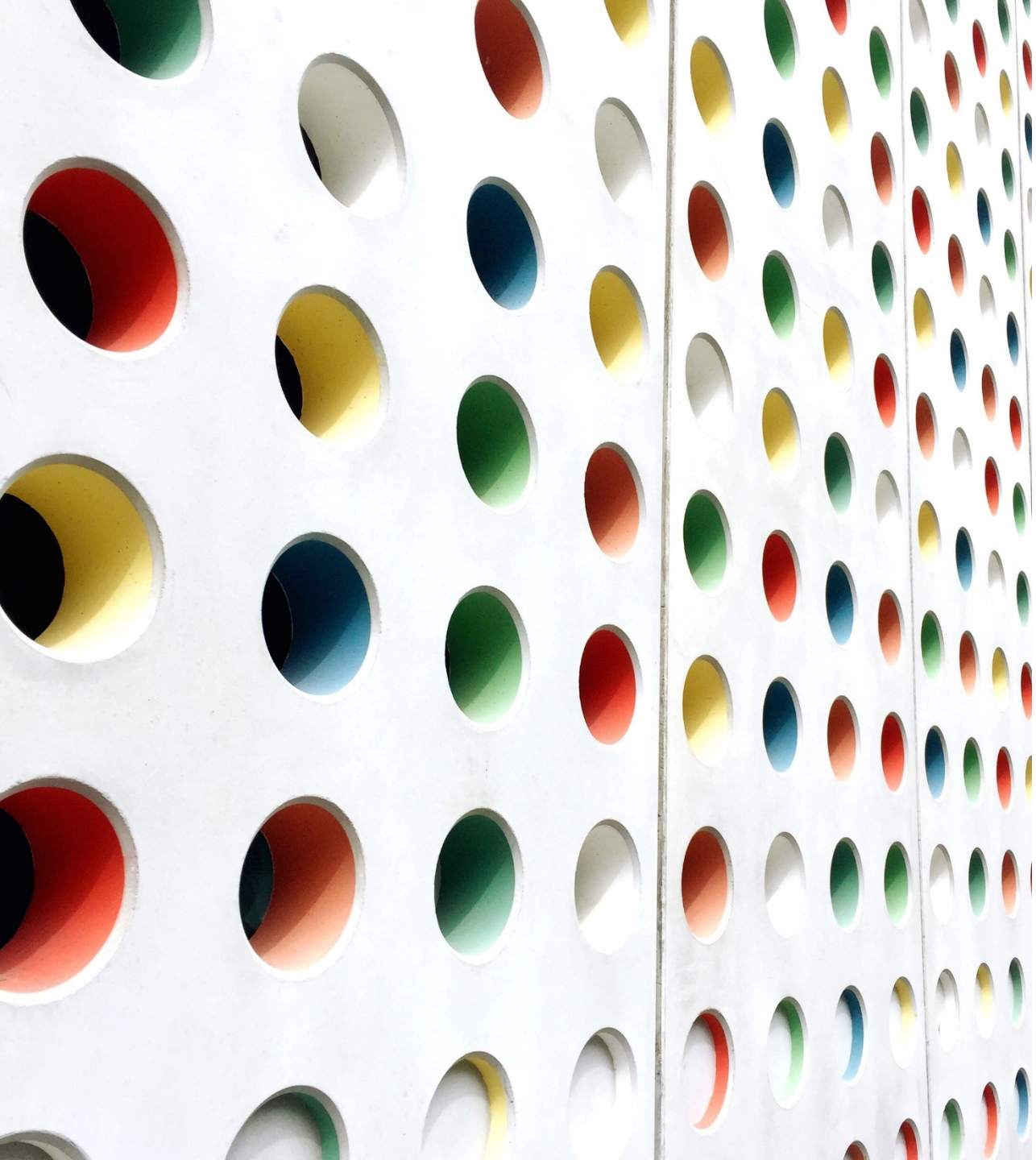

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(Tehran Polytechnic)

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April 2021

Research Group CV

Publications:
ISI Journals

18) A. Naseri, M. Samadi, A. Pourjavadi, S. Ramakrishna, A. Z. Moshfegh, Sunlight-Activated Z-Scheme Heterostructured ZnO/Carbon/g-C_3N_4 Nanofiber Photocatalyst for Effective Photodegradation Process, Journal of Photochemistry & Photobiology, A: Chemistry, under review.

17) M. Samadi, M. Zirak, M. Naseri, M. Kheriabadi, M. Ebrahimi, A. Z. Moshfegh, Design and tailoring of one-dimensional ZnO nanomaterials for photocatalytic degradation of organic dyes: a review, Research on Chemical Intermediates, 45 (2019) 2197–2254.

16) M. Kheriabadi, M. Samadi, E. Asadian, A. Z. Moshfegh, Well-designed Ag/ZnO/3D graphene structure for dye removal: adsorption, photocatalysis and physical separation capabilities, Journal of Colloid and Interface Science, 537 (2019) 66-78.

15) M. Samadi, N. Sarikhani, M. Zirak, H. Zhang, H. L Zhang, A. Z. Moshfegh, Group 6 transition metal dichalcogenide nanomaterials: synthesis, applications and future perspectives, Nanoscale Horizons, 3 (2018) 90-204.

14) M. Ebrahimi, S. Yousefzade, M. Samadi, C. Dong, J. Zhang, A. Z. Moshfegh, Facile preparation of branched hierarchical ZnO nanowire arrays with enhanced photocatalytic activity: A photodegradation kinetic model, Applied Surface Science, 435 (2018) 108-116.

13) A. Naseri, M. Samadi, A. Pourjavadi, A. Z. Moshfegh, S. Ramakrishna, Graphitic carbon nitride (g-C_3N_4)-based photocatalysts for solar hydrogen generation: recent advances and future development directions, Journal of Materials chemistry A, 5 (2017) 23406-23433.

12) A. Naseri, M. Samadi, N.M. Mahmoodi, A. Pourjavadi, A.Z. Moshfegh, Tuning the composition of (ZnO)1-x(CuO)x electrospun nanofibers for efficient solar photocatalytic degradation of organic pollutants and mechanism insight, The Journal of Physical Chemistry C, 121 (2017) 3327–3338.

11) M. Ebrahimi, M. Samadi, S. Yousefzadeh, M. Soltani, A. Rahimi, T. Chou, L. Chen, K. Chen, A. Z. Moshfegh, Improved Solar-Driven Photocatalytic Activity of Hybrid Graphen Quantum Dots/ZnO Nanowires: A Direct Z-scheme Mechanism, ACS Sustainable Chemistry & Engineering, 5 (2017) 367−375.

10) H. Ji, M. Samadi, H. Gu, V. Tomchak, Z. Qiao, Fabrication and Applications of Self-Assembled Nanopillars, AIMS Materials Science 4 (2017) 905-919.

Research Group CV

Publications:

ISI Journals

9) M. Samadi, M. Zirak, A. Naseri, E. Khorashadizadeh, A.Z. Moshfegh, Recent progress on doped ZnO nanostructures for visible-light photocatalysis, Thin Solids Films, 605 (2016) 2-19.

8) M. Zirak, M. Ebrahimi, O. Moradlou, M. Zhao, A. Bayat, M. Samadi, H. –L. Zhang, A. Z. Moshfegh, Fabrication and surface stochastic analysis of enhanced photoelectrochemical activity of a tuneable MoS_2–CdS thin film heterojunction, RSC Advances, 6 (2016) 6711-16719.

7) M. Zirak, O. Moradlou, M. Samadi, M. Zhao, H. L. Zhang, A.Z. Moshfegh, Controlled Engineering of WS_2 Few Layer Nanosheets-CdS Nanoparticle Heterojunction with Enhanced Photoelectrochemical Activity under Visible Light, Solar Energy Materials and Solar Cells, 141 (2015) 260–269.

6) M. Samadi, A. Pourjavadi, A. Z. Moshfegh, Role of CdO addition on the growth and photocatalytic activity of electrospun ZnO nanofibers: UV vs. visible light, Applied Surface Science, 298 (2014) 147-154.

5) H.A. Shivaee, M. Samadi, H. Alihosseini, H.R. Madaah, Nanocrystallization kinetics and magnetic properties of the melt spun amorphous $(Fe_{0.5}Co_{0.5})77Si_{11}B_9Cu_{0.6}Nb_{2.4}$ alloy, Thermochimica Acta, 575 (2014) 64-69.

4) M. Samadi, H.A. Shivaee, A. Pourjavadi, A. Z. Moshfegh, Synergism of oxygen vacancy and carbonaceous species on enhanced photocatalytic activity of electrospun ZnO-carbon nanofibers: Charge carrier scavengers mechanism, Applied Catalysis A: General 466 (2013) 153-160.

3) M. Samadi, H.A. Shivaee, M. Zanetti, A. Pourjavadi, A.Z. Moshfegh, Visible light photocatalytic activity of novel MWCNT-doped ZnO electrospun nanofibers, Journal of Molecular Catalysis A: Chemical 359 (2012) 42– 48.

2) A. Pourjavadi, M. Samadi, H. Ghasemzadeh, Fast-swelling Superabsorbent Hydrogels from Poly(2-hydroxy ethyl acrylate-co-sodium acrylate) Grafted on Starch, Starch 60(2) (2008) 79-86.

1) A. Pourjavadi, M. Samadi, H. Ghasemzadeh, Temperature Sensitive Superabsorbent Hydrogels from Poly(N-t-butyl acrylamide-co-acrylamide) Grafted on Sodium Alginate, Macromolecular Symposia 274(1) (2008) 177-183.

Research Group CV

Book Chapter:

A. Naseri, M. Samadi, M. Ebrahimi, M. Kheirabadi, A. Z. Moshfegh, (2019) Photocatalysis by Organic Materials -From Fundamental to Applications in *Current Developments in Photocatalysis and Photocatalytic Materials*, Elsevier.

International Conferences:

18) G. Asghari Sarabi, M. Samadi, H. Bagheri, A. Moshfegh, "Disinfection of the Water Borne Staphylococcus Aureus Pathogen by Using ZnO Nanorods/PAN Electrospun Nanofiber Photocatalyst", 8th International Conference on Nanostructures (ICNS8), 18-20 November 2020, Tehran, Iran.

17) M. Kheirabadi, M. Samadi, E. Asadian, A.Z. Moshfegh, "Three-Dimensional Ag nanoparticles/ZnO Nanorods/Graphene Hydrogel Composite for Enhanced Adsorption Capacity and Photocatalytic Activity with Facile Recycling", 7th International Conferences on Nanostructures (ICNS7), 27Feb- 1 Mar 2018, Tehran, Iran.

16) A. Naseri, M. Samadi, A. Pourjavadi, A. Z. Moshfegh, "ZnO/g-C_3N_4 Electrospun Nanofibers as Efficient Solar-Driven Photocatalysts, 7th International Conferences on Nanostructures (ICNS7), 27Feb- 1 Mar 2018, Tehran, Iran.

15) A. Naseri, M. Samadi, N.M. Mahmoodi, A. Pourjavadi, A.Z. Moshfegh, "Photocatalytic Activity of Electrospun ZnO/CuO Nanofibers", 6th International Conferences on Nanostructures (ICNS6), 7-10 March 2016, Kish Island, Iran.

14) N. Sarikhani, Z.S. Arabshahi, M. Samadi, A. Samieipour, D. Meissner, A.Z. Moshfegh, "Electrically Conductive Polypropylene/MWCNT Nanocomposites with a Very Low Percolation Threshold by a Novel Network Solidification Method", 6th International Conferences on Nanostructures (ICNS6), 7-10 March 2016, Kish Island, Iran

13) N. Sarikhani, M. Samadi, Z. S. Arabshahi, A. Z. Moshfegh, "Self-heating sensors with a new design concept for thermal conductivity measurement of polymeric nanocomposites", Seminar on Sensor Science and Technology 2015 (ssst2015), November 5, 2015, Tehran, Iran.

12) M. Zirak, O. Moradlou, M. Samadi, N. Sarikhani, H.L. Zhang, A.Z. Moshfegh, "Synergetic Effect of MoS_2 - Graphene Nanosheets in Improving Photoelectrochemical Performance of CdS Nanoparticles", 31st European Conference on Surface Science (ECOSS31), 31 Aug. – 4 Sep. 2015, Barcelona, Spain.

11) M. Samadi, S. Yousefzadeh, A. Z. Moshfegh, "A Comparative Study on the Photocatalytic Activity of Reduced Graphene Oxide and Carbon Nanotube Modified $BiVO_4$ Nanocomposite", The Asian Nano Forum Congress (ANFC2015), March 8-11, 2015, Kish Island, Iran, Oral poster

Research Group CV

International Conferences:

10) N. Sarikhani, M. Samadi, A.Z. Moshfegh, "A Novel Fabrication Method for Thermally Conductive MWCNT/Polypropylene Nanocomposites", Asian Nano Forum Congress (ANFC2015), 8-11 March 2015, Kish Island, Iran.

9) M. Zirak, O. Moradlou, M. Samadi, M. Zhao, H.–L. Zhang, A. Z. Moshfegh, "Well-Controlled Deposition of WS_2 Few Layer Nanosheets: Optimization the Parameters for Visible Photoelectrochemical Activity", The Asian Nano Forum Congress (ANFC2015), March 8-11, 2015, Kish Island, Iran, Oral poster

8) M. Zirak, O. Moradlou, M. Samadi, A.Z. Moshfegh, "Highly Luminescent Few layer MoS_2 as a Promising Photocatalyst under Sunlight Irradiation", 5th International Conferences on Nanostructures (ICNS5), March 6-9, 2014, Kish Island, Iran, Oral.

7) M. Samadi, A. Pourjavadi, A. Moshfegh, "The Effect of Annealing Rate on the Photocatalytic Properties of Electrospin $(ZnO)_{1-x}(CdO)_x$ Nanofibers under UV and Visible Light", The 17th International Conference on Semiconductor Photocatalysis and Solar Energy Conversion (SPASEC-17), November 11-15, 2012, Jacksonville, Florida, USA, Oral.

6) M. Samadi, A. Pourjavadi, A. Z. Moshfegh, "Fabrication, optical and photocatalytic properties of a new visible light active electrospun Zno/Carbon nanofibers", International Conference and Expo on Materials Science & Engineering, October 22-24, 2012, Chicago-North Shore, USA, Poster.

5) M. Samadi, A. Z. Moshfegh, "The effect of calcination atmosphere on photocatalytic property of ZnO nanofibers", 2nd International Conference on Electrospinning 2012 (Electrospin 2012), 29 May to 1 June, 2012, Jeju Island, South Korea, Oral.

4) M. Samadi, A. Z. Moshfegh, "Fabrication and characterization of electrospun composite nanofibers: A photocatalytic study", 4rd Conference on nanostructures (ICNS4), 12-14 March, 2012, Kish Island, I.R. Iran. Oral.

3) M. Samadi, A. Pourjavadi, A. Z. Moshfegh, "The effect of annealing environment on the growth of electrospun ZnO-CNT nanofibers", The Polymer Processing Society Asia/Australia Regional meeting (PPS2011), 14-17 November 2011, Kish Island, Iran, Oral.

2) M. Samadi, A. Pourjavadi, H. Ghasemzadeh, "Fast-swelling Superabsorbent Hydrogels from Poly(2-hydroxy ethyl acrylate-co-sodium acrylate) Grafted on Starch", The 8th International Seminar on Polymer Science & Technology, 23-25 October 2007, Tehran-Iran. Poster.1) M. Samadi, A. Pourjavadi, H. Ghasemzadeh, "Temperature Sensitive Superabsorbent Hydrogels from Poly(N-t-butyl acrylamide-co-acrylamide) Grafted on Sodium Alginate", The 8th International Seminar on Polymer Science & Technology, 23-25 October 2007, Tehran-Iran. Oral.

1) M. Samadi, A. Pourjavadi, H. Ghasemzadeh, "Temperature Sensitive Superabsorbent Hydrogels from Poly(N-t-butyl acrylamide-co-acrylamide) Grafted on Sodium Alginate", The 8th International Seminar on Polymer Science & Technology, 23-25 October 2007, Tehran-Iran. Oral.

Research Group Interest

Sustainability and Enviromental Remediation

Innovative Nanomaterials and Advanced Materials for Energy and Environmental Applications

Metal Oxides Semiconductors

CNT, Graphene, and Carbon Quantum Dots

Visible Light Active Photocatalysts

Electrospinning Technique for Preparation of ID Nanomaterilas

Super-hydrophobic and Hydrophilic Nanomaterials

Polymer and Hydrogel Synthesis

Group Research/Industrial Projects

Group Supervised Labs

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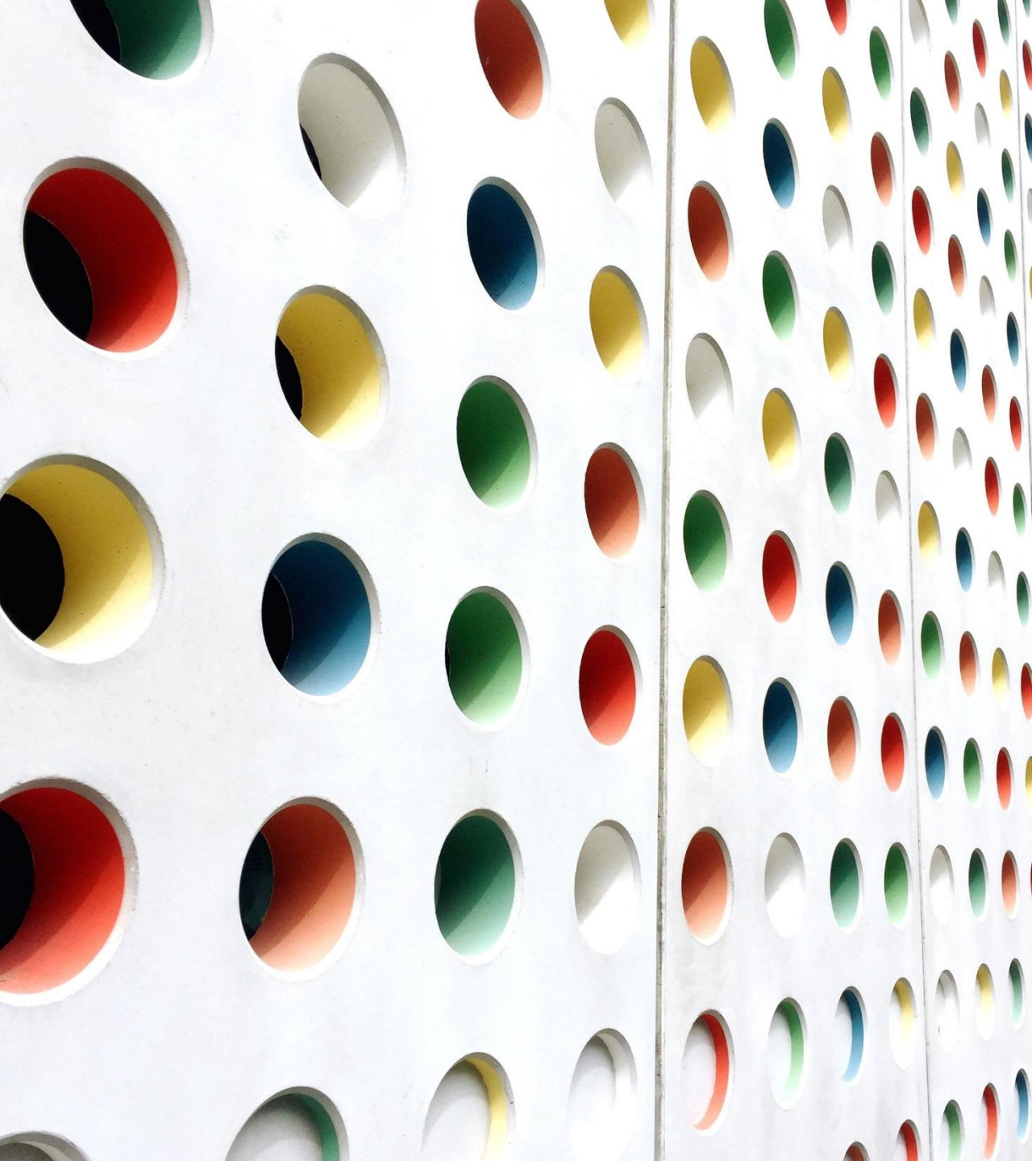

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Research Group CV

PUBLICATIONS

- https://scholar.google.com/citations?user=6Ib7OmwAAAAJ&hl=en

PERESENTAIONS

- Oral Presentation in the 4th Iranian Research Association of Vision and Ophthalmology (Albuminated PLGA nanoparticles containing bevacizumab intended for treatment of retinal and choroidal neovascularization) IRAVO 2014
- Oral presentation in the 6th CLINAM &ETPN Summit (Albuminated PLGA nanoparticles for the ophthalmic delivery of bevacizumab intended for retinal and choroidal neovascularization treatment) Basel, Switzerland. CLINAM 2013
- Oral presentation in the 12th Iranian Pharmaceutical Sciences Conference (Novel usage of dendrimers in reduction of percutaneous absorption of toxic chemicals) Zanjan, Iran. IPSC 2010
- Poster in the Reginal Confrence of Young Scientists, Nanoscience & Nanomaterials, TWAS (Preparation of thermosensitive in situ forming gel containing diclofenac loaded nanoparticlesintended for ocular inflammation treatment) Bangalore, India. TWAS 2015
- Poster in the 6th CLINAM &ETPN Summit (Transmission of topical SiO2 nanoparticles through the corneal stroma; a new horizon for management of corneal and choroidal neovascularization) Basel, Switzerland.Journal of Biomedical Materials Research Part A 106 (8), 2261-2271 CLINAM 2013
- Poster in the 12th International conference of Polymers for Advanced Technology (Thermosensitive Poloxamer/chitosan in situ-forming gel containing diclofenac sodium intended for ocular inflammation treatments) Berlin, Germany.

Research Group CV

EXPRIENCES

- Secretory and Senior researcher of Nano Research Network, Iran Ministry of Health and Medical Education (2013-2019)
- Lecturer, workshop (Polymeric nanoparticles in drug delivery), 2018 and 2019
- Executive secretary of Iranian Pharmaceutical Science Conference 2015, IPSC 2015
- Consultant and researcher of a topical formulation improvement project, Hakim Pharmaceutical Company (2009)

TEACHING ACTIVITIES

- Nanomedicine: PhD students (2020)
- Protein & Peptide drug delivery :Undergraduate pharmacy students (2020)
- Nanoparticles & Bio-conjugates in drug delivery: PharmD students (2020)
- Injectable formulations and sterilization :PhD students (2016-2019)
- Polymeric particles in drug delivery, liposomes, Implants and in situ forming gels :PharmD students (2014-2019)
- Transdermal drug deliveries: PharmD students students (2013-2019)
- Novel drug deliveries: MA students (2018-2019)

Research Group Interest

- Nano and microparticle drug deliveries
- Protein and gene delivery
- Bio-responsive and in-situ forming systems
- Targeted drug delivery
- Tissue engineering and biomaterials

Group Research/Industrial Projects

- 2020-current Shahid Beheshti University of Medical Sciences- Tehran| Assistant professor, Department of Pharmaceutics and Pharmaceutical Nanotechnology

- 2019-2020 Tofigh Daru Research and Engineering Company- Tehran| Project consultant Nano and Micro formulations

- 2017-2019 Nanotechnology Research Centre, Tehran University of Medical Sciences- Tehran| Postdoctoral researcher

- 2013-2017 Nano Daru| Project manager Injectable sustained release drug delivery formulation

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Group Supervised Labs