

**ADDRESS**

School of Physics, Institute for Research in Fundamental Sciences (IPM)  
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**PERSONAL**

First & Last names: Mojtaba Najafizadeh  
Place of birth: Neyshaboor, Iran  
Marital status: Married, 2 children (7 & 9 years)  
Gender & Nationality: Male, Iranian

**EDUCATION**

- **PhD in Physics** (Sep 2022 - Feb 2025): Ferdowsi University of Mashhad, Mashhad, Iran.  
Concentration: Elementary Particles and Field Theory  
Supervisor: Dr. Hamid Reza Afshar  
Thesis subject: Carrollian Field Theory (Evaluation: 20.00 out of 20.00 – Excellent)  
Honor: Awarded grant from Iran National Science Foundation (INSF) under project No. 4028530
- **MSc in Physics** (2006 - 2008): Tarbiat Modares University, Tehran, Iran.  
Concentration: Theoretical physics  
Honor: The top student (among 4 students) with a cumulative GPA of 17.22 (out of 20.00)
- **BSc in Physics** (2002 - 2006): University of Birjand, Birjand, Iran.  
Concentration: Theoretical physics  
Honor: The top student (among 17 students) with a cumulative GPA of 17.33 (out of 20.00)

**VISITS**

- **(Sep 2017 - Present)**: Institute for Research in Fundamental Sciences (IPM), Tehran, Iran.
- **(January 6-10, 2025)**: New York University, Abu Dhabi, UAE.  
Invited to present a poster at Strings 2025, NYU Abu Dhabi, January 2025.
- **(Mar 2019 - Apr 2019)**: Erwin Schrödinger International Institute (ESI), Vienna, Austria.  
Awarded grant of 2.4k Euros by the ESI across the visit.
- **(March 16-24, 2017)**: International Center for Theoretical Physics (ICTP), Trieste, Italy.
- **(Oct 2015 - Aug 2017)**: University of Tours, Tours, France.  
Advisor: Xavier Bekaert  
Awarded research grant of 6k Euros from Iran's research Ministry to visit the University of Tours (France)

**MEMBERSHIP**

Permanent member of the Physics Society of Iran (PSI)  
Member of the American Physical Society (APS), April 2025 – April 2026

**LANGUAGES**

Persian (mother tongue), English (good), French (beginner), Arabic (Familiar)

**REFEREE**

- Journal of Physics A: Mathematical and Theoretical
- The European physical journal plus
- Classical and Quantum Gravity
- New Journal of Physics

## PUBLICATIONS

1. M. Najafizadeh, *Post-Carrollian mechanics, ideal gas and gravity*, [Int. J. Mod. Phys. A \*\*40\*\*, no.27, 2550122 \(2025\)](#), [arXiv:2509.14330].
2. H. Afshar, X. Bekaert, M. Najafizadeh, *Classification of conformal Carroll algebras*, [JHEP \*\*148\*\*, 12 \(2024\)](#), [arXiv:2409.19953].
3. M. Najafizadeh, *Carroll–Schrödinger equation as the ultra-relativistic limit of the tachyon equation*, [Sci. Rep. \*\*15\*\*, 13884 \(2025\)](#), [arXiv:2403.11212].
4. K. Koutrolikos, M. Najafizadeh, *Super-Carrollian and Super-Galilean Field Theories*, [Phys. Rev. D \*\*108\*\*, no. 125014 \(2023\)](#), [arXiv:2309.16786].
5. M. Najafizadeh, *Massive to massless by applying a nonlocal field redefinition*, [Phys. Rev. D \*\*107\*\*, no. 045008 \(2023\)](#), [arXiv:2212.07042].
6. M. Najafizadeh, *Off-shell supersymmetric continuous spin gauge theory*, [JHEP \*\*038\*\*, 02 \(2022\)](#), [arXiv:2112.10178].
7. M. Najafizadeh, *Unconstrained massless higher spin supermultiplet in  $AdS_4$  spacetime*, [Phys. Rev. D \*\*105\*\*, no. 025001 \(2022\)](#), [arXiv:2012.15580].
8. M. Najafizadeh, *Supersymmetric continuous spin gauge theory*, [JHEP \*\*027\*\*, 03 \(2020\)](#), [arXiv:1912.12310].
9. M. Najafizadeh, *Local action for fermionic unconstrained higher spin gauge fields in  $(A)dS$  spacetimes*, [Phys. Rev. D \*\*98\*\*, no. 125012 \(2018\)](#), [arXiv:1807.01124].
10. X. Bekaert, J. Mourad, M. Najafizadeh, *Continuous-spin field propagator and interaction with matter*, [JHEP \*\*113\*\*, 11 \(2017\)](#), [arXiv:1710.05788].
11. M. Najafizadeh, *Modified Wigner equations and continuous spin gauge field*, [Phys. Rev. D \*\*97\*\*, no. 6, 065009 \(2018\)](#), [arXiv:1708.00827].
12. X. Bekaert, M. Najafizadeh, M. R. Setare, *A gauge field theory of fermionic continuous-spin particles*, [Phys. Lett. B \*\*760\*\* \(2016\) 320-323](#), [arXiv:1506.00973].
13. M. Najafizadeh, Mehdi Saadat, *Thermodynamics of Classical Systems on Noncommutative Phase Space*, [Chin. J. Phys. \*\*51\*\*, no.1, 94 \(2013\)](#), [arXiv:1108.4273].

## PRESENTATIONS

### International

- *Classification of Conformal Carroll Algebras*, Poster presentation at Strings 2025 conference, New York University, Abu Dhabi, UAE (Jan. 2025).
- *Off-shell supersymmetric continuous spin gauge theory*, Center for Theoretical Physics, Tomsk State Pedagogical University, Tomsk, Russia (July 2023) [[online](#)].
- *Supersymmetric continuous spin gauge theory*, Brown Theoretical Physics Center (BTPC) Lunch IDEA Series, Department of Physics, Brown University, Providence, USA (April 2021) [[online](#)].
- *Introduction to continuous-spin particles*, Laboratoire de Mathématiques et Physique Théorique, Université de Tours, Tours, France (Dec. 2016).

## National

- [\*Post-Carrollian Mechanics and Gravity\*](#), School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (Oct 2025).
- [\*Carroll Fermions and Supersymmetry\*](#), School of Particles and Accelerators, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (Jan 2024).
- [\*Massive to massless by applying a nonlocal field redefinition\*](#), 30<sup>th</sup> IPM Physics Spring Conference, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (May 2023).
- [\*Massive to massless by applying a nonlocal field redefinition\*](#), School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (Feb. 2023).
- [\*Supersymmetric continuous spin gauge theory\*](#), 27<sup>th</sup> IPM Physics Spring Conference, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (June 2020) [[online](#)].
- [\*Higher spin and continuous \(infinite\) spin gauge field theories\*](#), School of Particles and Accelerators, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (May 2019).
- [\*Local action principle for unconstrained higher spin gauge fields\*](#), School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (Nov. 2018).
- [\*Interactions of continuous spin particle \(CSP\) with matter\*](#), 25<sup>th</sup> IPM Physics Spring Conference, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (June 2018).
- [\*Recent advances in the theory of continuous-spin particle\*](#), School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (Oct. 2017).
- [\*Continuous-spin particles\*](#), School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran (Sep. 2016).

## CONFERENCES ATTENDED

### International

- [Strings 2025 conference](#), New York University, 6 - 10 January 2025, Abu Dhabi, UAE.
- [International Conference “Quantum Field Theory and Gravity \(QFTG’23\)”](#), Center for Theoretical Physics, Tomsk State Pedagogical University (online participant), 10 - 14 July 2023, Tomsk, Russia.
- [Workshop on “Higher spins and holography”](#), Erwin Schrödinger Institute (ESI), 11 March - 5 April 2019, Vienna, Austria.
- [The Spring School on “Superstring Theory and Related Topics”](#), International Center for Theoretical Physics (ICTP), 16 - 24 March 2017, Trieste, Italy.

### National

- [The 30<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 17 - 18 May 2023.
- [The 13<sup>th</sup> Conference on Particle Physics and Fields](#), Ferdowsi University of Mashhad (FUM), Mashhad, Iran, 07 - 08 Feb. 2023.

- [Iranian Conference on High Energy Physics](#), Institute of Theoretical Physics and Mathematics (IPM), Tehran, Iran, 08 - 10 Nov. 2021.
- [The 27<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 24 - 25 June 2020.
- [Recent Trends in String Theory and Related Topics](#), Institute of Theoretical Physics and Mathematics (IPM), Tehran, Iran, 21 - 25 April 2019.
- [The 25<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 20 - 21 June 2018.
- [Recent Trends in String Theory and Related Topics](#), Institute of Theoretical Physics and Mathematics (IPM), Tehran, Iran, 7 - 11 May 2018.
- [The 20<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 22 - 23 May 2013.
- [The 19<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 16 - 17 May 2012.
- [The 18<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 18 - 19 May 2011.
- [The 15<sup>th</sup> IPM Physics Spring Conference](#), Institute for Research in Fundamental Sciences (IPM), Tehran, Iran, 14 - 15 May 2008.

## TEACHING EXPERIENCE

- Lecturer, teaching *Electricity & Magnetism Physics*, *General Mathematics*, *General Physics*, *Applied Physics*, *Applied Mathematics*, *Electricity & Magnetism Physics Lab.* at University of Applied Science and Technology, Tehran, Iran (2009-2011).
- Teacher Assistant, *Advanced Quantum Mechanics II*, Tarbiat Modares University, spring 2008.
- Teacher Assistant, *Advanced Quantum Mechanics I*, Tarbiat Modares University, fall 2007.

## REFERENCE

- [Hamid Reza Afshar](#) (Ph.D. supervisor)  
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