Mehdi Shokri

Curriculum Vitae

Personal

Birth: 21/April/1985, Sary City, Mazandaran Province, Iran.

Nationality: Iranian.

Work Address : Canadian Quantum Research Center, BC, Canada.

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Education

Nov.2016-Feb.2020 **Ph.D. Theoretical Physics (Gravitation and Cosmology)**, Sapienza University of Rome, Rome, Italy.

Thesis: *Constraining Inflationary Models Using Cosmological Observables.*

Supervised by Prof. Alessandro Melchiorri

Jun.2013-Mar.2015 **Military Service in Iran (Mandatory)**

Sep.2009-Jan.2012 **M.Sc. Theoretical Physics (Gravitation and Cosmology)**, University of Mazandaran, Babolsar, Iran.

Thesis: *The Issue of Frames by Non-minimal Inflation.*

Supervised by Prof. Kourosh Nozari

Sep.2005-Jul.2009 **B.Sc. Theoretical Physics**, University of Mazandaran, Babolsar, Iran.

Thesis: *An Excursion Among Dark Energy Models.*

Supervised by Prof. Kourosh Nozari

Research Interest

Cosmology: Inflationary Cosmology, Primordial Perturbations, The interface of Particle Physics and Cosmology.

Gravitation: General Relativity, Modified Theories of Gravity, Physics of Black Holes.

Honor and Award

2023 Postdoctoral fellowship of the Iran's National Elites Foundation.

2022 Postdoctoral fellowship of the Iran's National Elites Foundation.

2021 Postdoctoral fellowship of the Iran's National Elites Foundation.

2019 Lazio scholarship of Sapienza University of Rome.

2018 Lazio scholarship of Sapienza University of Rome.

2011 Selected as a distinguished student among graduate students of Cosmology, University of Mazandaran, Babolsar, Iran.

2010 Selected as a first rank student among graduate students, University of Mazandaran, Babolsar, Iran.

2009 Mazandaran University Scholarship.

2009 Selected as a distinguished student among undergraduate students, University of Mazandaran, Babolsar, Iran.

2008 Selected as a distinguished student among undergraduate students, University of Mazandaran, Babolsar, Iran.

2007 Mazandaran University Scholarship.

2007 Selected as a first rank student among undergraduate students, University of Mazandaran, Babolsar, Iran.

Research Experience

Apr.2022-Present **Junior Researcher**, Canadian Quantum Research Center, British Columbia, Canada.

Jun.2021-Present **Adjunct Junior Researcher**, Damghan University, Damghan, Iran.

Feb.2022-Oct.2023 **Postdoctoral Researcher**, University of Tehran, Tehran, Iran.

Feb.2021-Jan.2022 **Postdoctoral Researcher**, University of Kurdistan, Kurdistan, Iran.

Mar.2020-Jan.2021 **Visiting Scholar**, University of Mazandaran, Babolsar, Iran.

Nov.2017-Jun.2020 **Researcher**, Istituto Nazionale di Fisica Nucleare (INFN) - Section of Rome, Rome, Italy.

Nov.2016-Feb.2020 **Ph.D. Student and Research Assistant**, Sapienza University of Rome, Rome, Italy.

Nov.2019-Dec.2019 **Visiting Scholar**, University of Mazandaran, Babolsar, Iran.

Sep.2017-Nov.2017 **Visiting Scholar**, University of Mazandaran, Babolsar, Iran.

Apr.2014-Aug.2016 **Research and Teaching Assistant**, University of Mazandaran, Babolsar, Iran.

Jul.2010-Jan.2012 **Research Assistant**, University of Mazandaran, Babolsar, Iran.

Teaching Experience

Jun.2021-Oct.2023 - Teacher of Fundamental Physics 2 for undergraduate level at Damghan University, Damghan, Iran.

- Teacher of Quantum Mechanics for undergraduate level at Damghan University, Damghan, Iran.

- Teacher of General Relativity for undergraduate level at Damghan University, Damghan, Iran.

- Teacher of Fundamental Cosmology for Master level at University of Mazandaran, Babolsar, Iran.

- Teacher of Cosmic Inflation and Primordial Perturbations for Master level at University of Mazandaran, Babolsar, Iran.

Apr.2014-Aug.2016
- Solving problem teacher of Quantum Field Theory 1 for graduate level at University of Mazandaran, Babolsar, Iran.

- Teacher of Fundamental Physics 1 for undergraduate level at University of Mazandaran, Babolsar, Iran.

- Teacher of Fundamental Physics 2 for undergraduate level at University of Mazandaran, Babolsar, Iran.

- Talks about Gravity and Cosmology for Particle Physics graduate students at University of Mazandaran, Babolsar, Iran.

Sep.2009-Jan.2012
- Solving problem teacher of Mathematical Methods of Physics 1 for undergraduate level at University of Mazandaran, Babolsar, Iran.

- Solving problem teacher of Mathematical Methods of Physics 2 for undergraduate level at University of Mazandaran, Babolsar, Iran.

Training Experience

Co-Supervisor:

- Ali Mohammadi (MSc),"*Studying inflationary models in the presence of constant-roll approximation*", 2021-2023"

- Solale Baziar (PhD),"*Studying different cosmological structures from superstatistics point of view*", 2021-present"

Technical Skill

Programming: Fortran

Data Analysis: Python, GetDist

Software: Latex, Microsoft Office, Maple, Mathematica

Operating System: Windows, Mac, Linux

Coursework

General Physics:

Fundamental Physics (I, II, III), Classical Mechanics (I, II), Mathematical Methods in Physics (I, II, III), Modern Physics, Electromagnetism (I, II), Thermodynamics, Statistical Mechanics, Quantum Mechanics (I, II), Fortran Programming, Nuclear Physics (I, II), Advanced Quantum Mechanics (I, II), Advanced Statistical Mechanics, Electrodynamics, Computational Physics.

Subject Physics:

Gravitation (I, II), Special Relativity, Cosmology, Astronomy, Quantum Gravity, Physics of Black Holes, Inflationary Cosmology, Quantum Field Theory.

Language

Persian: Mother-tongue

English: Fluent

Italian: Intermediate

Journal Reviewer

- Physics of the Dark Universe
- Journal of Holography Applications in Physics (JHAP)
- American Journal of Astronomy and Astrophysics (AJAA)

Conference, Meeting, Workshop, Talk

Conferences:

4- *"International Conference on High Energy Physics"*. Damghan, Iran (July 2022).

3- *"The 1st International Conference of Holography and its Applications"*. Damghan, Iran (March 2022).

2- *"The 32nd International Colloquium on Group Theoretical Methods in Physics"*. Prague, Czech Republic (July 2018).

1- *"Recent Trends in String Theory and Related Topics"*. IPM, Tehran, Iran (May 2016).

Meeting:

1- *"Gravity, Cosmology and Physics Beyond the Standard Model"*. University of Pierre and Marie Curie, Paris, France (June 2018).

Talks:

1- *"The Fifth Annual National Conference of Astronomy and Astrophysics of Iran"*. University of Damghan, Damghan, Iran (December 2011).

Reference

1- Alessandro Melchiorri (Ph.D. Supervisor)

Position: Full professor of Sapienza University of Rome, Rome, Italy.

Email: alessandro.melchiorri@gmail.com

2- Salvatore Capozziello (Collaborator)

Position: Full professor of Naples Federico II University, Naples, Italy.

Email: capozziello@na.infn.it

3- Ramón Herrera (Collaborator)

Position: Full professor of Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile.

Email: ramon.herrera@pucv.cl

4- Jafar Sadeghi (Collaborator)

Position: Full professor of University of Mazandaran, Babolsar, Iran.

Email: pouriya@ipm.ir

Publication

26- M. Shokri, "*Cosmological Solutions of Non-Commutative Modified Fermion Tensor Theories by Noether's Theorem*", In processing (2024).

25- M. Shokri, et al "*Reconstructing Finslerian Lagrangian from a Non-Commutative Deformed Minisuperspace in Horava-Lifshitz Black Holes*", In processing (2024).

24- S. Capozziello and **M. Shokri**, "*Comparing Inflationary Models in Extended Metric-Affine Theories of Gravity*", In processing (2024).

23- R. Herrera, **M. Shokri** and J. Sadeghi, "*Constant-roll inflation with a complex scalar field*", Annals of Physics (2024).

22- M. Ahmadi, N. Ahmadi and **M. Shokri**, *Analytical Insights into Constant-Roll Condition: Extending the Paradigm to Non-Canonical Models*", Journal of Cosmology and Astroparticle Physics (2024) , [arxiv: gr-qc/2312.05998].

21- R. Herrera, S. Noori Gashti, J. Sadeghi and **M. Shokri**, "*Warm inflation with bulk viscous pressure for different expansions of an anisotropic universe*", Physics Scripta (2024) [arxiv: gr-qc/2112.12309].

20- A. Mohammadi, N. Ahmadi, and **M. Shokri**, "*On the constant roll complex scalar field inflationary models*", Journal of Cosmology and Astroparticle Physics **06** (2023) 058, [arxiv: gr-qc/2212.13403].

19- R. Herrera, J. Sadeghi and **M. Shokri**, "*Galilean constant-roll inflation*", Physics of the Dark Universe **14** (2023) 101232, [arxiv: gr-qc/2206.01264].

18- M. R. Alipour, J. Sadeghi and **M. Shokri**, "*WGC and WCCC of black holes with quintessence and cloud strings in RPS space*", Nuclear Physics B **990** (2023) 116184, [arxiv: hep-th/2303.02487].

17- M. R. Alipour, J. Sadeghi and **M. Shokri**, "*WGC and WCC for charged black holes with quintessence and cloud of strings*", European Physical Journal C **83**(7) (2023) 640, [arxiv: hep-th/2307.09654].

16- S. Capozziello and **M. Shokri**, "*Slow-roll inflation in $f(Q)$ non-metric gravity*", Physics of the Dark Universe **37** (2022) 101113, [arxiv: gr-qc/2209.06670].

15- J. Sadeghi, **M. Shokri**, S. Noori Gashti and M. R. Alipour, "*RPS Thermodynamics of Taub-NUT AdS Black Holes in the Presence of Central Charge and the Weak Gravity Conjecture*", General Relativity and Gravitation **54** (129) (2022) 10, [arxiv: hep-th/2205.03648].

14-M. Shokri, J. Sadeghi and S. Noori Gashti "*Anisotropic constant-roll inflationary scenario with complex quintessence field and swampland conjectures*", (2022), [arxiv: gr-qc/2203.08460].

13- J. Sadeghi, **M. Shokri**, M. R. Alipour and S. Noori Gashti, "*Weak Gravity Conjecture from Conformal Field Theory: A Challenge from Hyperscaling Violating and Kerr-Newman-AdS Black Holes*", Chinese Physics C **47**(1) (2023) 015103, [arxiv: hep-th/2203.03378].

12- J. Sadeghi, **M. Shokri**, S. Noori Gashti, B. Pourhassan and P. Rudra, "*Traversable wormhole in logarithmic $f(R)$ gravity by various shape and redshift functions*", International Journal Modern Physics D **31** (2022) 2250019, [arxiv: gr-qc/2110.04846].

11- M. Shokri, M. R. Setare, S. Capozziello and J. Sadeghi, "*Constant-roll $f(R)$ inflation compared with Cosmic Microwave Background anisotropies and swampland criteria*", The European Physical Journal Plus **137** (2022) 639, [arxiv: gr-qc/2108.00175].

10- M. Shokri, J. Sadeghi and S. Noori Gashti, "*Quintessential constant-roll inflation*", Physics of the Dark Universe **35** (2022) 100923, [arxiv: astro-ph/2107.04756].

9- M. Shokri, J. Sadeghi and M. R. Setare, "*Constant-roll inflation from a fermionic field*", Europhysics Letter **139** (2022) 19001, [arxiv: gr-qc/2107.03283].

8- M. Shokri, J. Sadeghi, M. R. Setare, "*The generalized $sl(2,R)$ and $su(1,1)$ in non-minimal constant-roll inflation*", Annals of Physics **429** (2021) 168487, [arxiv: gr-qc/2104.01917].

7- M. Shokri, J. Sadeghi, M. R. Setare and S. Capozziello, "*Nonminimal coupling inflation with constant slow roll*", International Journal Modern Physics D **30** (2021) 2150070, [arxiv: gr-qc/2104.00596].

6- Z. Nekouee, J. Sadeghi and **M. Shokri**, "*The Lagrangian of charged test particle in Horava-Lifshitz black hole and deformed phase space*", International Journal Modern Physics A **35** (2020) 2040056, [arxiv: hep-th/1711.02534].

5- F. Renzi, **M. Shokri**, and A. Melchiorri, "*What is the amplitude of the Gravitational Waves background expected in the Starobinski model?*", Physics of the Dark Universe **27** (2020) 100450, [arxiv: astro-ph/1909.08014].

4- M. Shokri, F. Renzi and A. Melchiorri, "*Cosmic Microwave Background constraints on non-minimal couplings in inflationary models with power-law potentials*", Physics of the Dark Universe **24** (2019) 100297, [arxiv: astro-ph/1905.00649].

3- Z. Nekouee, J. Sadeghi and **M. Shokri**, "*The relation between non-commutative and Finsler geometry in Horava-Lifshitz black holes*", [arxiv: hep-th/1711.10482].

2- M. Shokri, "*A Revision to the Issue of Frames by Non-minimal Large Field Inflation*", [arxiv: hep-th/1710.04990].

1- J. Sadeghi, B. Pourhassan, Z. Nekouee and **M. Shokri**, "*Deformation of the quintom cosmological model and its consequences*", International Journal Modern Physics D **28** (2018) 20321, [arxiv: hep-th/1708.04319].