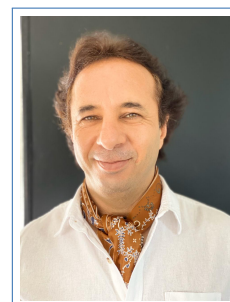


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Dubitando ad veritatem pervenimus– Cicerone

Personal Details

Gender **Male.**
Date of birth **4th of January, 1974.**
Place of birth **Piranshahr, Iran.**
Nationality **Iranian.**
Family status **Married.**

Education

- 1992-1996 **B. Sc in physics**, *University of Tehran, Tehran, Iran.*
- 1996-1999 **M. Sc in theoretical physics**, *University of Tabriz, Tabriz, Iran*, Thesis:
Calculation of level splitting and decay rate of some one-dimensional potentials by instantons method.
Supervisor: Prof. M. A. Jafarizadeh
- 1999-2005 **Ph. D in physics**, *Shahid Beheshti University, Tehran, Iran*, Thesis:
Classical and quantum dynamics of confined test particles in brane gravity,
Supervisor: Prof. H. R. Sepangi.

Abstract of Ph.D. Thesis

In this dissertation, we study the confinement of test particles (point-like spinless) to a 3-brane embedded in a bulk space with an arbitrary number of non-compact extra dimensions at the classical and quantum levels, respectively. In doing so, we introduce a new braneworld model, in which there is not any restriction on the number of extra dimensions. We show that confining a test particle to the brane at the classical level eliminates the effects of extra dimensions, rendering them undetectable. The condition of stability against perturbations along extra dimensions is also studied, and its relation to dark matter and dark energy is discussed. On the other hand, in the induced Klein-Gordon equation of particle, the effects of the induced Kaluza–Klein like gauge fields and extrinsic curvature, are pronounced. This might provide a hint for detecting the extra dimensions. As a consequence of confinement, the mass of the quantum test particle is shown to be quantized and is related to the value of the cosmological constant.

Research Interests

Mathematical Physics

- **Non-Commutative Geometry:**

Quantum groups, Applications of quantum groups in quantum gravity, Quantum deformation of quantum cosmological models by means of non-commutative geometry.

- **Differential Geometry of Semi-Riemannian Submanifolds:**

Nash's embedding theorem, Gauss-Codazzi-Ricci equations, Induced tensor calculus, Non-compact extra dimensions, Non-compact Kaluza-Klein gravity, Covariant Brane

Gravity.

- **Fractional Calculus and Fractional Quantum Mechanics:**

Application of fractional calculus in quantum cosmology

Quantum Gravity and Quantum Cosmology

- **Quantization Methods:**

Wheeler–DeWitt Equation, Geometric Quantization, Bohmian Quantum Mechanics, Complex Quantum Hamilton-Jacobi formalism, and Group Theoretical Quantization in quantum cosmology.

- **Observables in Quantum Gravity and Quantum Cosmology:**

Dirac observables, Boundary conditions, Classical-Quantum Correspondence.

- **Application of Non-Commutative Geometry in Quantum Gravity:**

Removing the Big-Bang singularity, Holographic principle and cosmological constant problems.

Covariant Brane gravity

- **Constructing new Braneworld models:**

Confinement of the matter fields, Constructing new Braneworld models with non-compact multi-extra dimensions, Early universe, Dark energy, Dark matter.

Research Experiences

- Research Assistant, Tabriz University, Tabriz, Iran, (1996-1999).

- Research Assistant, Shahid Beheshti University, Tehran, Iran, (1999-2005).

- Researcher in theoretical physics and cosmology, Research Institute for Astronomy and Astrophysics of Maragha, Maragha, Iran, (2004-2010).
- Associate Prof., Shahid Beheshti University, Tehran, Iran, (2005-2017).
- Long-Term Visiting Prof., Federal University for Latin American Integration, Foz do Iguacu-PR, Brazil, (2015-2019).
- Assistant Prof., Federal University of Pernambuco, Recife-PE, Brazil, (2019-present).

Employment

- 2005- 2017, Associate Professor, Shahid Beheshti University, Tehran, Iran.
- 2015-2019, Visiting Professor, Federal University for Latin American Integration, Foz do Iguacu-PR, Brazil.
- 2019-present, Assistant Professor, Federal University of Pernambuco, Recife-PE, Brazil.

Honors and Awards

- PhD scholarship, Ministry of Science, Research and Technology, Iran
- Top researcher in 2011, Shahid Beheshti University, Iran
- Long-Term Visiting Prof., 4-years, Federal University for Latin American Integration, Brazil

Presentations

- Talk entitled “Higgs and Maxwell field in higher dimensional gravity” Presented at the 11th Regional Conference on Mathematical Physics, IPM Spring Conference May 2004,

Tehran, Iran.

- Talk entitled “Brane Gravity and Confinement of test Particles” Presented at 6th Alexander Friedmann International Seminar on Gravitation and Cosmology, June 28 – 3th July, 2004, Cargese, France.
- Talk entitled “On extra forces from large extra dimensions” presented at the cosmology meeting 2005, April 5 – 8th April, Granada, Spain.
- Talk entitled “ On the Energy Conditions in Non-Compact Kaluza-Klein Gravity”, Grassmannian Conference in Fundamental Cosmology, 14-19 September 2009, University of Szczecin, Szczecin, Poland.
- Talk entitled “Unified field theories and dimensionality of spacetime”, National gravity and cosmology meeting, 6-7 January 2010, Shahid Beheshti University, Tehran, Iran.
- Head of organization committee, National gravity and cosmology meeting, 6-7 January 2013, Shahid Beheshti University, Tehran, Iran.
- Talk entitled “Dirac observables and boundary proposals in quantum cosmology” Second Workshop and Seminar on Topics in Theoretical Physics, 1-2 September 2014, Shahid Madani University, Iran.
- Talk entitled “Quantum cosmology: The (supersymmetric) door”, 14th Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Astrophysics, and Relativistic Field Theories (MG14), July 12-18, 2015, University of Rome, La Sapienza-Rome.
- Talk entitled “Quantum groups and inherent cosmological constant in quantum cosmology”, I Simpósio de Cosmologia e Gravitação, March, 22, 2018, Federal University

of Latin-American Integration, Foz do Iguacu-PR, Brazil.

Teaching experience

- Teaching Assistant at University of Tehran, Tehran, Iran, 1994-1996.
- Teaching Assistant at University of Tabriz, Tabriz, Iran, 1996-1999.
- Teaching Assistant for some graduate courses at physics department of Shahid Beheshti University, Tehran, Iran. 1999-2005.
- Teaching at Shahid Beheshti University, Tehran, Iran, 2005-2015.
- Teaching at Federal University of Latin-America Integration, Foz do Iguacu-PR, Brazil, 2015-2019.
- Teaching at Federal University of Pernambuco, Recife-PE, Brazil, 2019-present.

Teaching

Undergraduate

- Introductory physics (I, II and III) for physics, engineering, chemistry, mathematics and biology students,
- Mathematical Physics,
- Foundations of Modern Physics,
- Classical Mechanics,
- Foundations of Astrophysics and Cosmology for undergraduate physics students,

Graduate

- Differential Geometry-Topology,
- General Relativity,
- Quantum Mechanics,
- Modern Cosmology,

Professional Service

Associate Editor for High-Energy and Astroparticle Physics

1. Frontiers in Astronomy and Space Sciences
2. Frontiers in Physics

Guest Editor for

1. Special Issue “Fractional Gravity/Cosmology in Classical and Quantum Regime”,
Fractal and Fractional
2. Special Issue “Recent Developments in Fractional Quantum Mechanics”, Fractal and
Fractional

Referee for

1. Classical and Quantum Gravity (**IOP Trusted Reviewer**)
2. Physics of the Dark Universe
3. Foundations of Physics
4. International Journal of Theoretical Physics
5. International Journal of Modern Physics D
6. Central European Journal of Physics

7. Gravitation and Cosmology
8. Advances in High Energy Physics
9. Annals of Physics
10. Scientific Reports–Nature

Language Proficiency

1. English: full professional proficiency
2. Persian: fluent
3. Azerbaijani: native language
4. Turkish: intermediate (speaking, reading)
5. Portuguese: intermediate (speaking, reading), basic (writing)

Past PhD Students

1. Majid Fathi, *Quantum cosmology through complex Hamilton-Jacobi approach*, 2017, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
2. Mehdi Rashki. *Quantum cosmology from deformation quantization*, 2017, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
3. Mostafa Hashemi, *Emergent gravity in Cosmology*, 2016, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
4. Tahereh Rostami, *On the relation between hidden symmetries and boundary conditions in quantum cosmology*, 2015, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**

Past Masters students

1. Amir Bina, *Studying of Classical and Quantum Mechanics on the Noncommutative Phase Space and its Applications in Cosmology*, 2008, Arak University, Supervisor: **S. Jalalzadeh**.
2. Mehdi Mehrnia, *Classical tests in Brane gravity*, 2009, Shahid Beheshti University, Co-Supervisor: **S. Jalalzadeh**.
3. Amene Behboodi, *Exterior solutions of stellar stars in Kaluza-Klein context*, 2010, Shahid Beheshti University, Co-Supervisor: **S. Jalalzadeh**.
4. Nasim Saba, *On dimensionality of universe in classical and quantum cosmology*, 2010, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
5. Tahereh Rostami, *Noncommutative phase space and it's application in cosmology*, 2010, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
6. Mina Farzaneh, *String theory in cosmology, cosmological solutions and the Wheeler-DeWitt equation*, 2011, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
7. Morteza Tatari, *Mach's principle and its extension in Quantum Field Theory in Brans-Dicke gravity*, 2011, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
8. Behrang Mostaghel, *Spinors in non-compact dimensions*, 2011, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
9. Majid Fathi, *Quantum correction of 5-dimensional non-compact Kaluza-Klein equations*, 2011, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
10. Raheleh Jalalzadeh, *Induced quantum mechanical effects due to curvature of nano surfaces*, 2012, Islamic Azad University, Supervisor: **S. Jalalzadeh**.
11. Tara Hajiazim, *Modified gravity and its effects on cosmological models*, 2012, Islamic

- Azad University, Co-Supervisor: **S. Jalalzadeh.**
12. Mahkam Abedi Neyestanak, *Semiclassical corrections to the Einstein field equations with Induced Matter Theory*, 2012, Islamic Azad University, Supervisor: **S. Jalalzadeh.**
 13. Sina Kazemian, *Supersymmetric quantum cosmology*, 2012, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
 14. Mohammad Ali Gorji, *Cosmological constant problem*, 2012, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
 15. Mehdi Mahmoudian, *Einstein-Cartan cosmology*, 2012, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
 16. Seyed Amir Reza Ghasemi, *Third quantization in multidimensional cosmology*, 2012, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
 17. Seyedeh Sedigeh Hashemi, *Stephani metric as an alternative to FLRW models*, 2013, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
 18. Negar Nadaei, *Induced Matter in five dimensional Kaluza-Klein gravity*, 2013, Islamic Azad University, Co-Supervisor: **S. Jalalzadeh.**
 19. Maryam Nademi, *Stability of Schwarzschild metric*, 2013, Shahid Beheshti University, Co-Supervisor: **S. Jalalzadeh.**
 20. Yaghoub Heydarzade, *Quantum Effects in Brane Gravity*, 2013, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**
 21. Sheyda Najafi, *Five dimensional traversable wormhole*, 2013, Shahid Beheshti University, Supervisor: **S. Jalalzadeh.**

22. Maryam Barati, *A review on entropy bounds and holographic principle*, 2014, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
23. Zohreh Mohammadi *Quantization of the interior Schwarzschild black hole*, 2015, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
24. Erfan Massaeli, *Investigation of Non-commutative effect and generalized uncertainty in cosmology*, 2015, Shahid Beheshti University, Supervisor: **S. Jalalzadeh**.
25. Hemerson Ribeiro Duarte, *Quantum mechanics via complex Hamilton-Jacobi method*, 2018, Federal University for Latin American Integration (UNILA), Brazil, Supervisor: **S. Jalalzadeh**.
26. Filipe Rodrigues da Silva, *Canonical quantization of General Relativity with application to the Schwarzschild black hole*, 2022, Federal University of Pernambuco, Brazil, Supervisor: **S. Jalalzadeh**.

Book

Challenging Routes in Quantum Cosmology

Shahram Jalalzadeh and Paulo Vargas Moniz

World Scientific, ISBN: 978-981-4415-06-4

Review and Invited Articles

○ Review article:

1. *Quantum Cosmology: From hidden symmetries towards a new (supersymmetric) perspective*

S. Jalalzadeh, T. Rostami and P.V. Moniz, **In. J. Mod. Phys. D, 25 (2016)**

1630009.

2. *Shape Invariant Potentials in Supersymmetric Quantum Cosmology*

S. Jalalzadeh, S.M.M. Rasouli and P.V. Moniz, **Universe 8(6) (2022) 316.**

3. *Broadening quantum cosmology with a fractional whirl*

S.M.M. Rasouli, S. Jalalzadeh and P.V. Moniz, **Mod. Phys. Lett. A, 36, 2140005 (2021).**

4. *Noncompactified Kaluza–Klein Gravity,*

S.M.M. Rasouli, S. Jalalzadeh and P.V. Moniz,

Universe 8(8) (2022) 431.

- Invited article:

From Fractional Quantum Mechanics to Quantum Cosmology: An Overture

P.V. Moniz and S. Jalalzadeh, **Mathematics 8(3), 313 (2020).**

Published in Special Issue “Mathematical and Computational Cosmology”, Editor:
Prof. Dr. José Velhinho.

Publications in Proceedings

1. *Weyl geometry quantization in solar system*

P. Moyassari and S. Jalalzadeh, **Int. J. Mod. Phys. A. 20 (2005) 2515.**

2. *Brane gravity and confinement of test particles*

S. Jalalzadeh and H. R. Sepangi, **Int. J. Mod. Phys. A. 20 (2005) 2275.**

3. *On the Energy Conditions in Non-Compact Kaluza-Klein Gravity*

S. M. M. Rasouli and S. Jalalzadeh, **Annalen der Physik, 19 (2010) 276.**

4. *Quantum cosmology: The (supersymmetric) door*

T. Rostami, S. Jalalzadeh, and P. V. Moniz, **The Fourteenth Marcel Grossmann Meeting, 2791 (2017)**.

Publications

1. *Calculation of level splitting and decay rate of some one-dimensional potentials by instantons method*

M. A. Jafarizadeh and S. Jalalzadeh, **J. Math. Phys. 41 (2000) 701**.

2. *Multidimensional classical and quantum cosmology: exact solutions, signature transition and stabilization*

S. Jalalzadeh, F. Ahmadi and H. R. Sepangi, **JHEP 0308 (2003) 012**.

3. *Classical and Quantum dynamics of confined test particles in barne gravity S.*

Jalalzadeh and H. R. Sepangi, **Class. Quantum. Grav. 22 (2005) 2035**.

4. *Classical and quantum spinor cosmology with signature change*

B. Vakili, S. Jalalzadeh and H. R. Sepangi, **JCAP 05 (2005) 006**.

5.

6. *Weyl geometry quantization in solar system*

P. Moyassari and S. Jalalzadeh, **Int. J. Mod. Phys. A. 20 (2005) 2515**.

7. *Brane gravity and confinement of test particles*

S. Jalalzadeh and H. R. Sepangi, **Int. J. Mod. Phys. A. 20 (2005) 2275**.

Non-commutative multi-dimensional cosmology

N. Khosravi, S. Jalalzadeh and H. R. Sepangi, **JHEP 01(2006) 134**.

8. *Compactification and signature transition in Kaluza-Klein spinor cosmology*
B. Vakili, S. Jalalzadeh and H. R. Sepangi, **Ann. Phys.** **321** (2006) **2491**.
9. *Lorentz violation in brane cosmology, accelerated expansion and fundamental constants*
F. Ahmadi, S. Jalalzadeh and H. R. Sepangi, **Class. Quantum. Grav.** **23** (2006) **4069**.
10. *Accelerating universe in brane cosmology with confining potential*
M. Heydari-Fard, M. Shirazi, S. Jalalzadeh and H. R. Sepangi, **Phys. Lett. B** **640** (2006) **1**.
11. *Stabilization of test particles in Induced Matter Kaluza-Klein theory*
S. Jalalzadeh, B. Vakili, F. Ahmadi and H. R. Sepangi, **Class. Quantum. Grav.** **23** (2006) **6015**.
12. *Lorentz violation and the speed of gravitational waves in brane worlds*
F. Ahmadi, S. Jalalzadeh and H. R. Sepangi, **Phys. Lett. B** **647** (2007) **486**.
13. *Non-integrability and Mach's principle in Induced Matter Theory*
S. Jalalzadeh, **Gen. Relativ. Gravit.** **39** (2007) **387**.
14. *Quantum noncommutative multidimensional cosmology*
N. Khosravi, S. Jalalzadeh and H. R. Sepangi, **Gen. Rel. Gravit.** **39** (2007) **899**.
15. *Stabilization of internal space in noncommutative multidimensional cosmology*
N. Khosravi, S. Jalalzadeh and H. R. Sepangi, **Inter. J. Mod. Phys. D** **16** (2007) **1187**.

16. *Semiclassical corrections to Einstein equations and Induced Matter Theory*
P. Moyassari, and S. Jalalzadeh, **Gen. Rel. Gravit.** **39** (2007) 1467.
17. *On extra forces from large extra dimensions*
S. Jalalzadeh, B. Vakili and H. R. Sepangi, **Physica Scripta.** **76** (2007) 122.
18. *Schrödinger-Wheeler-DeWitt equation in chaplygin gas FRW cosmological model*
P. Pedram, S. Jalalzadeh and S. S. Gousheh, **Int. J. Theor. Phys.** **46** (2007) 3201.
19. *Stephani-Schutz quantum cosmology*
P. Pedram, S. Jalalzadeh and S. S. Gousheh, **Phys. Lett. B** **655** (2007) 91.
20. *Quantum Stephani exact cosmological solutions and the selection of time variable*
P. Pedram, S. Jalalzadeh and S. S. Gousheh, **Class. Quantum Grav.** **24** (2007) 5515.
21. *Noncommutativity, generalized uncertainty principle and FRW cosmology*
A. Bina, K. Atazadeh and S. Jalalzadeh, **Int. J. Theor. Phys.** **47** (2008) 1354.
22. *Quantum FRW cosmological solutions in the presence of chaplygin gas and perfect fluid*
P. Pedram and S. Jalalzadeh, **Phys. Lett. B** **659** (2008) 6.
23. *Perfect fluid quantum Universe in the presence of negative cosmological constant*
P. Pedram, M. Mirzaei, S. Jalalzadeh and S. S. Gousheh, **Gen. Relativ. Gravit.** **40** (2008) 1663.
24. *Quantum cosmology with varying speed of light: canonical approach*
P. Pedram and S. Jalalzadeh, **Phys. Lett. B.** **660** (2008) 1.

25. *Weyl-Dirac theory predict dark matter effects on galactic scales*
S. Mirabotalebi, S. Jalalzadeh, M. S. Movahed and H. R. Sepangi, **Mon. Not. R. Astron. Soc.** **38**, (2008) 986.
26. *Signature change from Schutz's canonical quantum cosmology*
P. Pedram and S. Jalalzadeh, **Phys. Rev. D** **77**, (2008) 123529.
27. *Generalized zeta functions, shape invariance and one-loop corrections to quantum Kink masses*
S. Rafiei, S. Jalalzadeh and K. Ghafoori Tabrizi, **CJP**, **46** (2008) 401.
28. *Variation of mass in primordial nucleosynthesis as a test of Induced Matter Brane Gravity*
S. Jalalzadeh and A. M. Yazdani, **Phys. Lett. B** **664** (2008) 229.
29. *Classical tests in brane gravity*
S. Jalalzadeh, M. Mehrnia and H. R. Sepangi, **Class. Quantum. Grav.** **26** (2009) 155007.
30. *Quantum mechanics and geodesic deviation in the brane world*
S. M. M. Rasouli, A. F. Bahrehbakhsh, S. Jalalzadeh and M. Farhoudi, **EPL**, **87** (2009) 40006.
31. *A class of cosmological solutions in induced matter theory with conformally flat bulk space*
N. Doroud, S. M. M. Rasouli and S. Jalalzadeh, **Gen. Relativ. Gravit.** **2637** (2009).
32. *Quantum black hole in the generalized uncertainty principle framework*

- A. Bina, S. Jalalzadeh and A. Moslehi, **Phys. Rev. D**, **81** (2010) 023528.
33. *Late time acceleration in a deformed phase space model of dilaton cosmology*
B. Vakili, P. Pedram and S. Jalalzadeh, **Phys. Lett. B** **687** (2010) 119.
34. *Chaplygin gas quantum universe in the presence of the cosmological constant*
P. Pedram and S. Jalalzadeh, **Gen. Relativ. Gravit.** **42** (2010) 745.
35. *One-Loop Quantum Cosmological Correction to the Gravitational Constant Using the Kink Solution in de Sitter Universe*
F. Darabi and S. Jalalzadeh, **Mod. Phys. Lett. A**, **25** (2010) 2955.
36. *One-Loop Quantum Cosmological Correction to the Gravitational Constant in the Closed Friedmann-Robertson Universe*
S. Jalalzadeh and F. Darabi, **Int. Jour. Mod. Phys. A**, **25** (2010) 4111.
37. *On the Energy Conditions in Non-Compact Kaluza-Klein Gravity*
S. M. M. Rasouli and S. Jalalzadeh, **Annalen der Physik**, **19** (2010) 276.
38. *Localization of Gravity in Brane World with Arbitrary Extra Dimensions*
A. M. Yazdani, K. Atazadeh and S. Jalalzadeh, **Int. Jour. Theo. Phys.** **50** (2011) 888.
39. *Quantization of the interior Schwarzschild black hole*
S. Jalalzadeh and B. Vakili, **Int. J. Theor. Phys.** **51** (2012) 263.
40. *Cosmological quantum tunneling and the holographic principle*
F. Darabi and S. Jalalzadeh, **Theo. Math. Phys.**, **175**(2) (2013) 710.
41. *Signature transition in Einstein-Cartan cosmology*
B. Vakili and S. Jalalzadeh, **Phys. Lett. B**, **726** (2013) 28.

42. *Deviation from the Standard Uncertainty Principle and the Dark Energy Problem*
S. Jalalzadeh, M. A. Gorji and K. Nozari, **Gen. Relativ. Gravit.** **46** (2014) **1632**.
43. *Quantum cosmology, minimal length and holographic principle*
S. Jalalzadeh, S. M. M. Rasouli and P. V. Moniz, **Phys. Rev. D**, **90** (2014) **023541**.
44. *Dirac observables and boundary proposals in quantum cosmology*
S. Jalalzadeh and P. V. Moniz, **Phys. Rev. D** **89**, (2014) **083504**.
45. *Dark side of the universe in the Stephani cosmology*
S. Sedigheh. Hashemi, S. Jalalzadeh and N. Riazi, **Eur. Phys. J. C** **74** (2014) **2995**.
46. *On the relation between boundary proposals and hidden symmetries of the extended pre-big bang quantum cosmology*
S. Jalalzadeh, T. Rostami, P. V. Moniz, **Eur. Phys. J. C** **75** (2015) **38**.
47. *Covariant extrinsic gravity and the geometric origin of dark energy*
S. Jalalzadeh and T. Rostami, **Int. J. Mod. Phys. D**, **24** (2015) **1550027**.
48. *Holography from quantum cosmology*
M. Rashki and S. Jalalzadeh, **Phys. Rev. D** **91** (2015) **023501**.
49. *Financial market images: A practical approach owing to the secret quantum potential*
F. Tahmasebi, S. Meskinimood, A. Namaki, S. Vasheghani Farahani, S. Jalalzadeh and G. R. Jafari, **EPL** **109** (2015) **30001**.
50. *Collapse and dispersal of a homogeneous spin fluid in Einstein-Cartan theory*

- M. Hashemi, S. Jalalzadeh and M. H. Ziaie, **Eur. Phys. J. C** **75** (2015) **53**.
51. *Five dimensional cosmological traversable wormhole*
S. Najafi, T. Rostami and S. Jalalzadeh, **Ann. Phys.** **354** (2015) **288**.
52. *Hawking temperature and the emergent cosmic space*
M. Hashemi, S. Jalalzadeh, S. Vasheghani Farahani, **Gen. Relativ. Gravit.** **47** (2015) **53**.
53. *Quantum cosmological intertwining: Factor ordering and boundary conditions from hidden symmetries*
T. Rostami, S. Jalalzadeh, P.V. Moniz, **Phys. Rev. D.** **92** (2015) **023526**.
54. *The laws of thermodynamics and information for emergent cosmology*
M. Hashemi, S. Jalalzadeh and S. Vasheghani Farahani, **Gen. Relativ. Gravit.** **47** (2015) **139**.
55. *Why the measured cosmological constant is small*
T. Rostami and S. Jalalzadeh, **Phys. of the Dark Universe**, **9-10** (2015) **31**.
56. *Quantum Cosmology: From hidden symmetries towards a new (supersymmetric) perspective* (invited review article)
S. Jalalzadeh, T. Rostami and P. V. Moniz, **In. J. Mod. Phys. D**, **25** (2016) **1630009**.
57. *Non-singular Brans-Dicke collapse in deformed phase space*
S. M. M. Rasouli, A. H. Ziaie, S. Jalalzadeh and P. V. Moniz, **Ann. Phys.** **375** (2016) **154**.
58. *Classical universe emerging from quantum cosmology without horizon and flatness*

problems

M. Fathi, S. Jalalzadeh and P. V. Moniz, **Eur. Phys. J. C**, **76** (2016) 527.

59. *Quantum Hamilton-Jacobi Cosmology and Classical-Quantum Correlation*

M. Fathi and S. Jalalzadeh, **Int. J. Theor. Phys.** **56** (2017) 2167.

60. *The quantum state of the universe from deformation quantization and classical-quantum correlation*

M. Rashki and S. Jalalzadeh, **Gen. Relativ. Gravit.** **49** (2017) 14.

61. *Quantum deformation of quantum cosmology: A framework to discuss the cosmological constant problem*

S. Jalalzadeh, A. J. S. Capistrano and P. V. Moniz, **Phys. of the Dark Universe** **18** (2017) 55.

62. *Quantum cosmology: The (supersymmetric) door*

T. Rostami, S. Jalalzadeh, and P. V. Moniz, **The Fourteenth Marcel Grossmann Meeting**, **2791** (2017).

63. *Interacting dark side of universe through generalized uncertainty principle*

M. Rashki, M. Fathi, B. Mostaghel and S. Jalalzadeh, **In. J. Mod. Phys. D.** **28** (2019) 1950081

64. *Bohmian mechanics of Klein-Gordon equation via quantum metric and mass*

S. Jalalzadeh and A.J.S. Capistrano, **Mod. Phys. Letters A** **34**, 1950270 (2019).

65. *From Fractional Quantum Mechanics to Quantum Cosmology: An Overture*

P.V. Moniz and S. Jalalzadeh, **Mathematics** **8**(3), 313 (2020).

66. *Classical Universe Arising from Quantum Cosmology*
S. Jalalzadeh, M. Rashki and S. Abarghouei Nejad, **Phys. Dark Universe**, **30**, **100741 (2020)**.
67. *Broadening quantum cosmology with a fractional whirl*
S.M.M. Rasouli, S. Jalalzadeh and P.V. Moniz, **Mod. Phys. Lett. A**, **36**, **2140005 (2021)**.
68. *Prospecting Black Hole Thermodynamics with Fractional Quantum Mechanics*
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