

Curriculum Vitae



Personal:

Name Faisal Etminan _____
Date of birth Dec.09, 1982
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Permanent Address Physics Department,
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Languages: Persian(Native), English(Fluent), Japanese(fairly fluent).

Field of Specialization:

Elementary Particle Physics- Hadron-Hadron Interaction from lattice QCD.

Area of Research:

1. Lattice Quantum Chromodynamics,
2. Nuclear Model at Low and High Energy Studies ,
3. Exotic and Strange Nuclei Studies.

Education:

1. **B. Sc.** 2001-2006 Physics, Isfahan University, Isfahan, Iran
2. **M. Sc.** 2006-2008 Computational Nuclear Physics, Payam-Nor
University, Mashhad, Iran.

Title of M. Sc thesis: Calculation of Energy Level of Deformed Nuclei in the Nilsson Model.

3. **Ph.D.** 2009-2014 University of Birjand, Khorasan Jonobi, Iran.

Title of Ph.D thesis: Nuclear Force from Lattice Quantum Chromodynamics.

Academic appointment:

1. Assistant professor, University of Birjand, since 2015 till now.

Awards and Fellowships:

1. **Researcher:** 2012-2013 School of Mathematics and applied Science, University of Tsukuba, Japan. **Title of Research:** Nuclear Force from Lattice QCD, Nucleon-Omega(baryon) Interaction by HAL QCD Methods.
2. **Researcher:** 2014/01/08 – 2014/04/10 Yukawa Institute for Theoretical Physics (YITP), University of Kyoto, Japan.
Title of Research: Nucleon-Omega(baryon) Interaction by HAL QCD Methods.

Courses taught:

- Advanced Nuclear Physics
- Elementary Nuclear Physics
- Elementary Particle Physics
- Quantum Field Theory
- Relativistic Quantum Mechanics
- Computer Simulation
- The Nucleare Many- Body Problem
- Monte-Carlo Calculations and simulations
- Quantum Chromodynamic
- Lattice Quantum Chromodynamics
- Introduction Heavy Ion Collision

Teaching Experience:

- Fundamentals of Physics (Mechanics .9 years).
- Fundamentals of Physics (Electromagnetics.9 years).
- Introduction to Nuclear and Particle Physics.
- Numerical method (1 years).
- Statistical Physics
- Mathematical Physics
- Nuclear Structure
- Advanced Nuclear Physics
- Introduction to Lattice QCD

Computer Language:

Programming Language: Fortran, C, C++, Python.

Software : MATLAB, Wolfram Mathematica, GEANT 4.

Publication and Preprints:

1. F. Etminan, The NN Ω_{ccc} Bound-States with the HAL QCD interaction, (2025), arXiv: 2508.12276, [**nucl-th**]
2. F. Etminan, The Bound states of $_{c\bar{c}}^{9}\text{Be}$ within $c\bar{c}+\alpha+\alpha$ cluster models based on state-of-the-art HAL QCD charmonium-nucleon interactions, (2025), arXiv: 2508.02653, [**nucl-th**]
3. F. Etminan, Probing ϕ N interaction through bound states of $_{\phi}^{6}\text{He}$ mesic nuclei within $\phi\text{N}+\alpha$ cluster model (2025), arXiv:2507.17022 , [**nucl-th**], **Phys. Rev. C - Accepted 15 September, 2025, DOI: <https://doi.org/10.1103/p93c-zk34>**
- 4.
5. F. Etminan, Quantitative predictions of alpha-charmonium correlation functions in high-energy collisions (2025), arXiv:2506.14724 , [**nucl-th**]
6. F. Etminan, Re-evaluation of the deuteron-deuteron thermonuclear reaction rates in metallic deuterium plasma (2025), arXiv:2504.05003 , [**nucl-th**].
7. F. Etminan, Exploring Λ and Ξ triton correlation functions in heavy-ion collisions (2024), *arXiv:2412.07295*, [**nucl-th**], **J. Phys. G: Nucl. Part. Phys. 52 085103 (2025)**.
8. F. Etminan, Exploring the $\phi\alpha$ interaction via femtoscopic study (2024), arXiv:2410.22756 [**nucl-th**], **Phys. Lett. B 866, 139564 (2025)**
9. F. Etminan, Femtoscopic study of the $\Omega\alpha$ interaction in heavy-ion collisions ,**Phys. Rev. C 111, 014912 (2025)**.
10. F. Etminan, A. Aalimi, Examination of the ϕ -NN bound-state problem with lattice QCD N- ϕ potentials, **Phys. Rev. C 109, 054002 (2024)**.
11. F. Etminan, K. Sasaki, T. Inoue , $\Lambda_{c}K^{+}\text{-}PD_{S}$ Interaction in Flavor SU(3) Limit of Lattice QCD, **Phys. Rev. D 109, 074506 (2024)**; [arXiv-2311.02569 \(2023\)](https://arxiv.org/abs/2311.02569).
12. F. Etminan, Z. Sanchuli, M. M. Firoozabadi, Geometrical properties of Ω NN three-body states by realistic NN and first principles Lattice QCD Ω N potentials ; **Nucl. Phys. A 1033, (2023)122639**.
13. Etminan, F., & Farsad, S. F. (2023). The effect of phenomenological $\Lambda\alpha$ potentials in $_{\Lambda\Lambda}^{6}\text{He}$ hypernuclei by using modern $\Lambda\Lambda$ potential derived from lattice QCD. **Iranian Journal of Physics Research**, 22(4), 701-709. doi:10.47176/ijpr.22.4.11408.

14. F. Etminan, M. R. Hadizadeh, Faddeev calculations for light $Y Y$ –hypernuclei, *Chinese Physics C* Vol 46, No. 10(2022), 104103
15. Faisal Etminan,; A simple model of the charmed hypertriton, *arXiv:2006.12771 [nucl-th]*.
16. Faisal Etminan, Mohammad Mehdi Firoozabadi; Ω -deuteron Interaction and Ω Hypernuclei ; <https://arxiv.org/abs/1908.11484>
17. Faisal Etminan, Mohammad Mehdi Firoozabadi; Study of $\Xi+\alpha$ and $\Omega+\alpha$ Systems with the Folding Model; *Chinese Physics C* Vol. 44, No. 5 (2020) 054106(**Highlighted**);
18. Faisal Etminan, Mohammad Mehdi Firoozabadi; Constrained Path Monte Carlo method for spin 1/2 fermions at unitarity limit; *arXiv:1708.04383 [cond-mat.str-el]* .
19. T. Iritani, S. Aoki, T. Doi, F. Etminan, . Gongyo, T. Hatsuda, Y. Ikeda, T. Inoue, N. Ishii, T. Miyamoto, K. Sasaki, $N\Omega$ dibaryon from lattice QCD near the physical point , *Phys.Lett. B*792 (2019) 284-289.
20. K. Moritta, A. Ohnishi, F.Etminan, T. Hatsuda, Probing multistrange dibaryons with proton-omega correlations in high-energy heavy ion collisions, *Phys. Rev. C*, 94, 031901(R) (2016).
21. F. Etminan, M. M. Firoozabad, *Mod Phy Lett.* Vol. 29, No. 33 (2014) 1450177 (6 pages).
22. F. Etminan et al., (HAL QCD Collab.), Spin-2 $N\Omega$ dibaryon from lattice QCD, *Nucl. Phys. A* 928, 89 (2014).

Conferences:

1. Investigation of hypothetical ${}_{\Omega\Omega}^6\text{He}$ hypernuclei, 11th Annual Conference on Particle Physics, Tehran, Sharif University 19-20 May 2021.
2. Binding Energy and Matter Radius of ΩNN and $\Omega\Omega\text{N}$ states, 11th Annual Conference on Particle Physics, Tehran, Sharif University 19-20 May 2021.
3. Dependency of maximum mass and radius of neutron stars to symmetry of nuclear matter, , 26th Iranian Nuclear Conference 1-4 March 2021.
4. The ND Interactions in from Lattice QCD, 26th Iranian Nuclear Conference 1-4 March 2021.
5. Ground-State constrained-Path Monte Carlo for Strongly Paired Fermions, Strings and Fields 2017, August 7 - 11, 2017, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan

6. pD_s interaction from lattice QCD, Sixth Annual Conference on Particle Physics, Isfahan, 2016 .
7. N- Ω Interaction from Lattice QCD by HAL QCD Method, Annual Physics Conference of Iran University of Birjand, 5-8 September 2013.
8. Glue Like Effect in Strange Nuclei(Cold Compression), Annual Physics Conference of Iran Urmia University 5-8 September 2011.
9. Relativistic Hartree approach including both positive- and negative-energy bound states, Annual Physics Conference of Iran Urmia University 5-8 September 2011.
10. Application of Relativistic Mean Field Theory in High Energy, First Annual Conference on Particle Physics, Yazd, 2011 .
11. Bulk Properties of Hypernuclei in Relativistic Mean Field Theory, The International Symposium on Physics of Unstable Nuclei 2011 (ISPUN11), Hanoi, Vietnam, November 23 – 28, 2011.
12. The Calculation of The Energy Level of Deformed Nuclei, The Third Conference on Physics Specialist Payam Noor University Of Ahvaz, Iran, 22-25 December 2009.

Public Talks and Outreach:

1. Ground-State constrained-Path Monte Carlo for Strongly Paired Fermions, public talk presented at the University of Birjand, in **Week Of Research**, 8th December 2017.
2. Nuclear Force from Lattice QCD, public talk presented at the University of Birjand, in **Week Of Research**, 5th December 2015.
3. The symmetry and simplicity of the laws of physics and the Higgs boson, public talk presented at the University of Birjand, in **Week Of Research**, 15th December 2014.
4. Investigation of *hypothetical* ${}^6_{\Omega\Omega}\text{He}$ hypernuclei, at Iranian society meeting April 2021
5. Binding Energy and Matter Radius of ΩNN and $\Omega\Omega\text{N}$ states, at Iranian society meeting April 2021

Professional Service:

1. The manager of web site of physics group at University of Birjand from 2015 to 2018 .
2. Workshop on MATLAB and Simulink Applications, 15th December 2018 at University of Birjand.
3. Workshop on MATLAB and Simulink Applications, 5th December 2016 at University of Birjand.

Professional Memberships

1. Physics Society of Iran

References:

1. Prof. Dr. Sinya AOKI,

E-mail: saoki@yukawa.kyoto-u.ac.jp

Professor, Yukawa Institute for Theoretical Physics,

Kyoto University, Japan.

2. Prof. Dr. Tetsuo Hatsuda,

E-mail: thatsuda@riken.jp

Director, RIKEN iTHEMS <https://ithems.riken.jp>, Japan.

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Associate Professor of Physics,
CENS 264, Central State University,
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Mashhad, Iran

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