

Amin Faraji Astaneh

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Male, Iranian, 21 April 1986

Education

BSc in Physics

Shairaz University (2004 - 2008), Shiraz, Iran.

MSc in Physics

Sharif University of Technology(2008 - 2010), Tehran, Iran.

PhD in Physics

Sharif University of Technology (2010-2015), Tehran, Iran.

Research interests

Theoretical High Energy Physics including Quantum Field Theory & Particle Physics, Gravity, String Theory and Gauge-Gravity Duality.

Educational Experiences

Teaching (and TAsip)

- General Physics I & II,
- Mathematical Physics I,
- Quantum Mechanics I, II & III,
- Introductory and advanced Particle Physics,
- Astrophysics.
- Electromagnetism I & II,
- Special Relativity,
- General Physics Lab II.

Research Experiences

- Researcher in particle physics group in Sharif University of Technology. (2008-2015) & (2020-present)
- Non-IPM Student Researcher, **School of particles and accelerators, Institute for Research in Fundamental Sciences.** (2012 -2015)
- Visiting researcher at **Laboratoire de Mathématiques et Physique Théorique (LMPT)**, Université François-Rabelais Tours, France. (April-September 2014)
- Postdoctoral Researcher (2015-2018) and resident researcher (2018-present), **School of particles and accelerators, Institute for Research in Fundamental Sciences.**
- Visiting Researcher, **Theory division, CERN** (March 2016, 2017 and 2018)
- Visiting Researcher, **Institut des Hautes Études Scientifiques Université Paris-Saclay - IHES** (August-September 2018)

Honors and Awards

- Membership of the National Elite Foundation in Iran (*Kazemi Ashtiany award*) (*since 2016*).
- *Granted by the "National Science and Technology Foundation" as a distinguished post-doctoral researcher, Tehran, Iran (2016).*
- *" Freydoon Mansouri's fellowship 2014 " in string theory, Institute for research in Fundamental Science, IPM (2014).*
- *4'th rank in 13'th Scientific Physics Olympiad for University students (2008).*
- *Rank 15 in national MSc. entrance exam.*
- *Honoured as a top student in BSc. program in Shiraz university (2007)*
- *Credited for PhD program in Sharif University of Technology (2010)*

Publications

- 1) A. F. Astaneh and A. E. Mosaffa, "Holographic Entanglement Entropy for Excited States in Two Dimensional CFT," JHEP **1303**, 135 (2013), [arXiv:1301.1495 [hep-th]]
- 2) M. Alishahiha, A. F. Astaneh and M. R. M. Mozaffar, "Entanglement Entropy for Logarithmic Conformal Field Theory," Phys. Rev. D **89**, 065023 (2014) [arXiv:1310.4294 [hep-th]]

- 3) M. Alishahiha, A. F. Astaneh and M. R. M. Mozaffar, “Holographic Entanglement Entropy for 4D Conformal Gravity,” *JHEP* **1402**, 008 (2014) [arXiv:1311.4329 [hep-th]]
- 4) M. Alishahiha, A. F. Astaneh and M. R. M. Mozaffar, “Thermalization in Backgrounds with Hyperscaling Violating Factor,” *Phys. Rev. D* **90**, 046004 (2014) [arXiv:1401.2807 [hep-th]]
- 5) A. F. Astaneh and A. E. Mosaffa, “Quantum Local Quench, AdS/BCFT and Yo-Yo String,” *JHEP* **1505**, 107 (2015) [arXiv:1405.5469 [hep-th]]
- 6) A. F. Astaneh, G. Gibbons and S. N. Solodukhin, “What surface maximizes entanglement entropy?,” *Phys. Rev. D* **90**, no. 8, 085021 (2014) [arXiv:1407.4719 [hep-th]]
- 7) A. F. Astaneh, A. Patrushev and S. N. Solodukhin, “Entropy vs Gravitational Action: Do Total Derivatives Matter?,” [arXiv:1411.0926 [hep-th]]
- 8) A. F. Astaneh, A. Patrushev and S. N. Solodukhin, “Entropy discrepancy and total derivatives in trace anomaly,” *Phys. Lett. B* **751**, 227 (2015) [arXiv:1412.0452 [hep-th]]
- 9) A. F. Astaneh and S. N. Solodukhin, “The Wald entropy and 6d conformal anomaly,” *Phys. Lett. B* **749**, 272 (2015) [arXiv:1504.01653 [hep-th]]
- 10) M. Alishahiha, A. F. Astaneh, P. Fonda and F. Omidi, “Entanglement Entropy for Singular Surfaces in Hyperscaling violating Theories,” *JHEP* **1509**, 172 (2015) [arXiv:1507.05897 [hep-th]]
- 11) A. Faraji Astaneh, “Entanglement entropy on fractals,” *Phys. Rev. D* **93**, no. 6, 066004 (2016) “Entanglement Entropy on Fractals,” [arXiv:1511.01330 [hep-th]]
- 12) A. F. Astaneh and S. N. Solodukhin, “Holographic calculation of boundary terms in conformal anomaly,” *Phys. Lett. B* **769**, 25 (2017) [arXiv:1702.00566 [hep-th]]
- 13) A. Faraji Astaneh, C. Berthiere, D. Fursaev and S. N. Solodukhin, “Holographic calculation of entanglement entropy in the presence of boundaries,” *Phys. Rev. D* **95**, no. 10, 106013 (2017) [arXiv:1703.04186 [hep-th]]
- 14) M. Alishahiha, A. Faraji Astaneh, A. Naseh and M. H. Vahidinia, “On complexity for F(R) and critical gravity,” *JHEP* **1705**, 009 (2017) [arXiv:1702.06796 [hep-th]]
- 15) M. Alishahiha and A. Faraji Astaneh, “Holographic Fidelity Susceptibility,” *Phys. Rev. D* **96**, no. 8, 086004 (2017) [arXiv:1705.01834 [hep-th]]
- 16) M. Alishahiha, A. Faraji Astaneh, M. R. Mohammadi Mozaffar and A. Molabashi, “Complexity Growth with Lifshitz Scaling and Hyperscaling Violation,” *JHEP* **1807**, 042 (2018) [arXiv:1802.06740 [hep-th]]
- 17) M. Alishahiha and A. Faraji Astaneh, “Complexity of Hyperscaling Violating Theories at Finite Cutoff,” *Phys. Rev. D* **100**, 086004 (2019) [arXiv:1905.10740 [hep-th]].

- 18) M. Alishahiha, A. Faraji Astaneh and A. Naseh, “Island in the presence of higher derivative terms,” JHEP **02**, 035 (2021) [arXiv:2005.08715 [hep-th]].
- 19) M. Alishahiha, A. Faraji Astaneh, G. Jafari, A. Naseh and B. Taghavi, “Free energy for deformed Jackiw-Teitelboim gravity,” Phys. Rev. D **103**, no.4, 046005 (2021) [arXiv:2010.02016 [hep-th]].
- 20) A. Faraji Astaneh and S. N. Solodukhin, “Boundary conformal invariants and the conformal anomaly in five dimensions,” Phys. Lett. B **816**, 136282 (2021) doi:10.1016/j.physletb.2021.136282 [arXiv:2102.07661 [hep-th]].
- 21) K. Allameh, A. F. Astaneh and A. Hassanzadeh, “Aspects of holographic entanglement entropy for $T\bar{T}$ -deformed CFTs,” Phys. Lett. B **826**, 136914 (2022) doi:10.1016/j.physletb.2022.136914 [arXiv:2111.11338 [hep-th]].
- 22) A. Faraji Astaneh and K. Allameh, “Energy of decomposition and entanglement thermodynamics for T2-deformation,” Phys. Lett. B **839**, 137772 (2023) doi:10.1016/j.physletb.2023.137772 [arXiv:2212.02816 [hep-th]].
- 23) A. Faraji Astaneh and S. N. Solodukhin, “Fermions, boundaries, and conformal and chiral anomalies in $d=3, 4$ and 5 dimensions,” Phys. Rev. D **108**, no.8, 085015 (2023) doi:10.1103/PhysRevD.108.085015 [arXiv:2308.10351 [hep-th]].

Conferences and Talks

- Mini-School on *(Holographic) Entanglement Entropy*, IPM, Tehran, Iran (Apr 25-Apr 27, 2013)
Talk: *Entanglement Entropy for Excited States, a Holographic Calculation.*
- 3’rd IPM School and Workshop on *Applied Ads/CFT*, IPM, Tehran, Iran (Feb 22-Feb 28, 2014)
Talk: *Entanglement entropy for logarithmic conformal field theory.*
- Conference on *Gravitation, Solitons and Symmetries*, University of Tours, Tours, France (May 20- May 23, 2014).
- IPM String School and Workshop (String2015), IPM, Tehran, Iran (Feb 28-Mar 4, 2015)
Talk: *Entanglement and Symmetry.*
- Spring School on *Superstring Theory and Related Topics*, ICTP, Trieste, Italy (25 Mar-2 Apr, 2015).
- One day workshop on *Quantum Information and Holography*, IPM, Tehran, Iran (Feb 25, 2016)
Talk: *Field Theory approach to the Entanglement Entropy.*
- IPM String School and Workshop (String2016), IPM, Tehran, Iran (Apr 27-May 1, 2016)
Talk: *Entanglement Entropy on Fractals.*

- IPM School and Conference on Conformal Field Theory and its Applications, IPM, Tehran, Iran (Oct 24-27, 2016)
Talk: *Some Aspects of the Fractional CFTs.*
- 7'th conference on Particle Physics and Field Theory, Physics Society of Iran, Damghan, Iran (Jan 25 & 26, 2017)
Talk: *Quantum Complexity and Entanglement in QFT and Holography.*
- 9'th Crete Regional meeting in String Theory, Kolymbari, Greece (09-16 July 2017)
Talk: *Holographic Boundary Conformal Field Theory.*
- Recent Trends in String Theory and Related Topics, IPM, Tehran, Iran (7-11 May, 2018)
Talk: *Holographic aspects of boundary conformal field theories.*
- Advanced School on Holography and Quantum Information Topics , IPM, Tehran, Iran (February 20-23, 2020)
Talk: *Holographic Realization of the Information Paradox.*
- 27'th IPM Physics Spring Conference, Institute for Research in Fundamental Sciences, IPM, Tehran, Iran (24-25 June 2020),
Talk: *Quantum Physics and Geometry, 20 years in 20 minutes.*
- 5'th Iranian Conference on Mathematical Physics (ICMP) (28-30 Dec 2020),
Talk: *Recent developments in the holographic realization of quantum information.*
- Weekly webinars in particle physics and fields, Physics Society of Iran (3 Feb 2021),
Talk: *Quantum Information, Geometry of spacetime and the black holes .*
- Invited speaker, 2'nd international conference on Massive Gravity and Black Hole Physics, Tabriz University (14-15 Dec 2021),
Talk: *3 lectures on Entanglement Entropy and Quantum Complexity in Massive Theories.*
- Conformal anomalies: theory and applications, Tours, France (31 May-2 June)
Talk: *Boundary Conformal Anomaly in Odd Dimensions*

Journal Reviewe/Conference organizer:

- Referee for *Journal of Highe Energy Physics,*
- Referee for *Nuclear Physics B,*
- Referee for *European Physics Journal C,*
- Referee for *General Relativity and Gravitation Journal,* Springer,
- Referee for *Iranian Journal of Physics Research,*

- Referee for *Journal of Research on Many-body Systems*,
- Referee for *Several conferences organized by Physics Society of Iran*,
- Organizer of the *Theory Weekly Seminars, School of Particles and Accelerators, IPM, Tehran, Iran* (Nov. 2015 - Jan. 2018),
- Member of the organization committee *Recent Trends in String Theory and Related Topics (String 2017), IPM, Tehran, Iran* (8-11 May 2017).
- Member of the organization committee *Sharif University and PSI Public Talks on Frontiers of Physics* (A series of online talks).
- Member of the organization committee *15th conference of particles and fields* (19-20 May 2021/Online.).

Computer Skills

- Programing with C/C++, MATLAB, ... ,
- Working with packages for tensorial calculations: xAct, CADABRA, ... ,
- Softwares: Mathematica, Maple,... ,
- OS: Linux, Windows.

Language Skills

- Persian: Native.
- English: Fluent.