Curriculum Vitae

Personal Data:

Name:	Seyed Akbar
Surname:	Jafari
Nationality:	Iranian
Gender:	Male
Date of birth:	Sept. 06, 1977
Marital status:	Married, one daughter, one son
Languages:	Persian (native), Turkish (native), English (fluent, self-taught), German (intermediate, self-taught) Arabic (fair)
Permanent address:	Department of Physics, Sharif University of Technology, Tehran 11155-9161, Iran

Career:

Professor:	Sharif Univ. of Tech., Nov. 2020-
Associate Professor:	Sharif Univ. of Tech. (Dec. 2013 – Nov. 2020)
Assistant Professor:	Sharif Univ. of Tech. (Sept. 2012 – Nov. 2013)
Assistant Professor*	Sharif Univ. of Tech. (Sept. 2010 – Aug. 2012)
Assistant Professor:	Isfahan Univ. of Tech. (Dec. 2006 – Aug. 2010)
Post Doc.:	IMR, Tohoku University, Sendai, Japan (Nov. 2004 – Nov. 2006) Leader: Professor Sadamichi Maekawa Subject: Theory of nonlinear optics in strongly correlated electron systems
PhD:	Sharif University of Technology, Tehran, Iran (Jan. 2000 – Sept. 2004) Supervisor: Professor Ganapathy Baskaran (IMSc, Chennai, India) Subject: Spin physics of graphite
Diploma:	The Abdus Salam ICTP, Trieste, Italy (Sept. 2001 – Sept. 2002)
BSc:	Sharif University of Technology, Tehran, Iran (Sept. 1995 – Sept. 1999)

Research interests and experiences:

1. Alternative spacetime structures in the solid state physics
2. Dirac/Weyl materials and topological matter
3. Field theoretical and geometric methods in condensed matter physics
4. Spin models and spin liquids

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* *Pending status*: For being outspoken against devastating policies of President M. Ahmadinejad, my recruitment procedure was pended for nearly two years by chancellor Prof. Dr. Reza Rousta-azad.

5. Computational electronic structure of correlated systems (DMFT, QMC, ED)
6. Interplay between disorder and interactions in solids
7. Nonlinear optics, interaction of light with strongly correlated electrons
8. Graphene, Borophene and other 2D materials

Awards, Fellowships, Extended visits:

1. Selected by Iran Science Elites Federation (ISEF) as class B scientist (ranked 50-100 in the country), 2020-2021
2. Selected as distinguished researcher in physics by the research deputy, Sharif University of Technology (2020)
3. Regular Associate Member of the Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy, 2020-2025
4. Selected by Iran Science Elites Federation (ISEF) as class A scientist (top 50 scientists in basic sciences) of Iran, 2019-2020
5. Visitor, Perimeter Institute, Waterloo, Canada, June 2019.
6. Visitor, MPI PKS, Dresden, Germany, July-September 2019.
7. Al-Biruni young scientist award, Iranian Academy of Science, 2016.
8. Tokyo University of Science President Award, Jan. 2015.
9. Alexander von Humboldt fellowship for experienced researchers, March 2014, (3+3+15 months extended visits) hosted by Prof. Dr. Juergen Koenig at Univ. Duisburg-Essen
10. Japan Society for the Promotion of Science (JSPS) Invitation Fellowship for Research in Japan, 2013.
11. Visiting Scientist, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan, June-August 2012.
12. IRR 150,000,000 (~US$ 6,000) settling down grant, NEF of Iran, 2012.
13. Junior Associate Member, The Abdus Salam International Center for Theoretical Physics, Jan. 2004 – Dec. 2017.
14. Visiting Professor, International Collaboration Center, Institute for Materials Research, Tohoku University, Japan, Aug. 2011.
15. IRR 200,000,000 (~ US$ 20,000) Grant for early career assistant professors, National Elite Foundation of Iran, 2008.
16. Visiting Scientist, Maekawa Laboratory, Institute for Materials Research, Tohoku University, Japan, Aug. 2008.
17. Young investigator award, Physical society of Iran, National Conference on superconductivity, 2008.
18. Appointed by the Minister of Science, Research and Technology of Iran, as Member of the referees committee, Youth Khawrizmi National Festival, 2004.
19. Japan Society for Promotion of Science (JSPS) post doctoral fellowship, 2004.
20. First rank, Youth Khawrizmi National Festival for outstanding PhD research in basic sciences, Ministry of Science, Research and Technology of Iran, Dec. 2003.
21. Sharif Univ. of Tech. fellowship for exceptional talents, Sept. 2003 – Sept. 2004.

22. Two fellowships from the Third World Academy of Science to visit the Institute of Mathematical Sciences (IMSc), Chennai, India (Dec. 2002, Jan. 2004).
23. Diploma thesis passed with honors, Abdus Salam ICTP, Trieste, Italy, Sept. 2002.
24. 3rd rank in national Olympiad of physics, Feb. 1998.
25. 28th rank, nationwide entrance exam of the state universities among about million high school students, 1995.

Research highlights in the media:

1. **SPINONICS**, American Institute of Physics (AIP) News July 2002
2. Iranian Students' News Agency (ISNA), 2003
3. **Magnetic frustration gives the honeycomb lattice aromatic characteristics**, Institute of Physics (IOP Labtalk), 2011
4. **Journal cover**, Advanced Materials, Oct. 2011
5. **Mott-Heisenberg-Dirac physics in graphene,** IOP Labtalk, 2012
6. **Universal aspects of Dirac fermions in nonlinear optics,** IOP Labtalk, 2012
7. **Spin-orbit interactions versus Kekule structure**, IOP Labtalk, 2014
8. Highlight in various local media for scientific achievements, such as Iranian Students News Agency, Physical Society of Iran, Duisburg University news.

Teaching Experience:

1. Modern condensed matter I, II (Graduate)
2. Advanced Quantum Mechanics I, II (Graduate)
3. Many-body quantum theory for condensed matter I, II (Graduate)
4. Mathematical Physics (Undergraduate)
5. Computational Physics, Hands on computer course (Undergraduate)
6. Introductory Solid State Physics I and II (Undergraduate)
7. Advanced Solid State Physics (Graduate) at Sharif and Duisburg
8. Statistical Physics (Graduate, Undergraduate)
9. General Physics I, Mechanics (Undergraduate)
10. Analytical Mechanics I, II (Undergraduate)

Mentoring, supervision and co-supervision

6 BSc students: all admitted to various graduate schools
19 MSc students: 17 admitted to various PhD programs
11 PhD students: 7 are faculty members in Iran, 4 are post docs
4 post docs: 1 is faculty member in Iran and 3 are currently working with me

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Publications summary

Journal Papers: 78 refereed papers, 3 arXiv preprints,
Conferences: 5 contributed talks, 11 invited talks

Books (translation):

1. S. A. Jafari, Persian translation of *Quantum Theory of Solids*, by E. P. O'Reilly, Isfahan Univ. of Tech. Press, Iran (2005).
2. S. A. Jafari, Persian translation of *Superconductivity, Superfluidity and Condensates*, by J. F. Annett, Isfahan Univ. of Tech. Press, Iran (2014).

Lecture notes:

1. S. A. Jafari, *Solid State Physics*, (in Persian), Based on the textbook of Ibach and Luth, Incomplete translation. Substance for bilingual Deutsch-Persian book
2. S. A. Jafari, *Computational Physics* (in Persian), Evolving manuscript.
3. S. A. Jafari, *Many-body quantum theory* (in Persian), Evolving manuscript.

Services:

1. Elected to board of directors, Physical Society of Iran (2020-2023)
2. Elected member of the steering committee of Condensed Matter Physics, Physical Society of Iran (2016-2019 and 2019-2022)
3. Organizer of 3 international workshops and schools, and 3 national schools
4. Member and award winner of the international affairs of Sharif Univ. of Tech.
5. Constant service in graduate, research and international relations committees of the physics department

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References:

1. Professor Ganapathy Baskaran, Distinguished Visiting Research chair, Perimeter Institute, Canada. Email: baskaran@imsc.res.in
2. Professor Sadamichi Maekawa, RIKEN, Japan. Email: sadamichi.maekawa@riken.jp
3. Professor Takami Tohyama, Tokyo University of Science, Tokyo, Japan. Email: tohyama@rs.tus.ac.jp
4. Professor Juergen Koenig, University of Duisburg-Essen, Duisburg, Germany, Email: koenig@thp.uni-due.de
5. Professor Shahin Rouhani, Sharif University of Technology, Tehran, Iran, Email: rouhani@ipm.ir

Publications:

Books: (Translations from English to Persian)

1. S. A. Jafari, Persian translation of *Quantum Theory of Solids*, by E. P. O'Reilly, Isfahan Univ. of Tech. Press, Iran (2005).
2. S. A. Jafari, Persian translation of *Superconductivity, Superfluidity and Condensates*, by J. F. Annett, Isfahan Univ. of Tech. Press, Iran (2014).

Refereed Papers:

1. A. . Mohajerani, Z. Faraei, S. A. Jafari, arxiv:2004.14112 (to appear in *J. Phys. Cond. Mat.* 2021)
2. A. Habibi, T. Farajollahpour, S. A. Jafari, *J. Phys. Cond. Mat.* **33** (2021) 125701
3. Z. Jalalimola, S. A. Jafari, *Phys. Rev. B* **102** (2020) 245148.
4. T. Farajollahpour, S. A. Jafari, *Phys. Rev. Research* **2** (2020) 023410
5. Z. Faraei, S. A. Jafari, *Phys. Rev. B* **101** (2020) 214508
6. Abolfath Hosseinzade, S. A. Jafari, *Ann. Phys.* (NY) **414** (2020) 168075
7. Abolfath Hosseinzade, S. A. Jafari, *Ann. der Phys.* **2020** (2020) 1900601.
8. Z. Faraei, S. A. Jafari, *Phys. Rev. B* **100** (2019) 245436.
9. Z. Jalalimola, S. A. Jafari, *Phys. Rev. B.* **100** (2019) 205413.
10. F. Adinehvand, Z. Faraei, T. Farajollahpour, S. A. Jafari, *Phys. Rev. B* **100** (2019) 195408.
11. A. Habibi, R. Ghadimi, S. A. Jafari, *J. Phys. Cond. Mat.* **32** (2019) 015604.
12. Z. Jalalimola, S. A. Jafari, *Phys. Rev. B* **100** (2019) 075113.
13. Z. Faraei, S. A. Jafari, *Phys. Rev. B* **100** (2019) 035447.
14. S. A. Jafari, *Phys. Rev. B* **100** (2019) 045144.
15. R. Ghadimi, M. Kargarian, S. A. Jafari, *Phys. Rev. B* **100** (2019) 024502.
16. T. Farajollahpour, Z. Faraei, S. A. Jafari, *Phys. Rev. B* **99** (2019) 235150.
17. R. Ghadimi, M. Kargarian, S. A. Jafari, *Phys. Rev. B* **99** (2019) 115122.
18. E. Adibi, A. Habibi, S. A. Jafari, *Phys. Rev. B* **99** (2019) 014204.
19. Z. Jalalimola, S. A. Jafari, *J. Magn. Magn. Mat.* **471** (2019) 220.
20. Z. Jalalimola, S. A. Jafari, *Phys. Rev. B* **98** (2018) 235430.
21. A. Habibi, E. Adibi, S. A. Jafari, *Phys. Rev. B* **98** (2018) 245105.
22. A. Mohajerani, Z. Faraei, S. A. Jafari, *J. Phys. Cond. Mat.* **30** (2018) 50LT01.
23. Z. Faraei, T. Farajollahpour, S. A. Jafari, *Phys. Rev. B* **98** (2018) 195402.
24. Z. Jalalimola, S. A. Jafari, *Phys. Rev. B* **98** (2018) 195415.
25. A. Habibi, S. A. Jafari, S. Rouhani, *Phys. Rev. B* **98** (2018) 035142.
26. T. Farajollahpour, S. A. Jafari, *Phys. Rev. B* **98** (2018) 085136.
27. T. Farajollahpour, S. A. Jafari, *J. Phys. Cond.. Mat.* **30** (2017) 015602.
28. Z. Faraei, S. A. Jafari, *Phys. Rev. B* **96** (2017) 134516.
29. M. Salehi, S. A. Jafari, *Sci. Rep.* **7** (2017) 8221.
30. S. A. Jafari, *Phys. Rev. E* **96** (2017) 012159.
31. S. A. Jafari, F. Shahbazi, *Sci. Rep.* **6** (2016) 32720.

32. E. Adibi, S. A. Jafari, *Phys. Rev. B* **93** (2016) 075122.
33. M. Mashkoori, I. Mahyaeh, S. A. Jafari, *J. Phys. Soc. Jan.,* **85** (2016) 014707.
34. Hanif Hadipuor, S. A. Jafari, *Eur. Phys. Jour. B* **88** (2015) 270.
35. Z. Jalali, S. A. Jafari, *J. Phys. Conference Series,* **603** (2015) 012005.
36. M. Mashkoori, I. Mahyaeh, S. A. Jafari, *J. Phys. Conference Series,* **603** (2015) 012015.
37. E. Ahmadi, S. A. Jafari, *J. Phys. Conference Series,* **603** (2015) 012016.
38. M. Salehi, S. A. Jafari, *Ann. Phys.* **359** (2015) 64.
39. M. Mashkoori, S. A. Jafari, *J. Phys. Cond. Mat.* **27** (2015) 156001.
40. M. H. Zare, H. Mosadeq, F. Shahbazi, S. A. Jafari, *J. Phys. Cond. Ma.* **26** (2014) 456004.
41. S. A. Jafari, T. Tohyama, *J. Phys. Cond. Mat.* **26** (2014) 415601.
42. S. A. Jafari, *Eur. Phys. Lett.* **107** (2014) 20005
43. A. Habibi, S. A. Jafari, *J. Phys. Cond. Mat.* **25** (2013) 375501
44. J. Sarabadani, M. Soltani, P. Zakeri, and S. A. Jafari, *Phys. Rev. A* **86** (2012) 022507
45. S. A. Jafari, *J. Phys. Cond. Mat.* **24** (2012) 305601
46. S. A. Jafari, *J. Phys. Cond. Mat.* **24** (2012) 205802.
47. M. Ebrahimkhas, S. A. Jafari, *Eur. Phys. Lett.* **98** (2012) 27009.
48. S. A. Jafari, G. Baskaran, *J. Phys.: Cond. Mat.* **24** (2012) 09560.
49. M. Ebrahimkhas, S. A. Jafari, G. Baskaran, *Int. J. Mod. Phys. B* **26** (2012) 1242006.
50. E. Sarvestani, S. A. Jafari, *Phys. Rev. B* **85** (2012) 024513.
51. D. Haberer, et al, *Phys. Status Solidi B*, **248** (2011) 2639.
52. Z. Faraei, S. A. Jafari, V. Daadmehr, *Physica C* **471** (2011) 458.
53. D. Haberer, et al, *Advanced Materials* **23** (2011) 4487.
54. H. Mosadeq, F. Shahbazi, S. A. Jafari, *JPCM*, **23** (2011) 226006.
55. D. Haberer, et al, *Phys. Rev. B* **83** (2011) 165433.
56. M. Hafez, S. A. Jafari, *Eur. Phys. Jour. B* **78** (2010) 323.
57. H. H. Arefi, S. A. Jafari, M. R. Abolhassani, *Eur. Phys. J. B* **77** (2010) 331.
58. M. Alaei, S. A. Jafari, *Phys. Lett. A*, **374** (2010) 3793.
59. M. Hafez, S. A. Jafari, Sh. Adibi, F. Shahbazi, *Phys. Rev. B*, **81** (2010) 245131.
60. M. H. Zare, M. Amini, F. Shahbazi, S. A. Jafari, *J. Phys. Cond. Mat.* **22** (2010) 255503.
61. M. Amini, S. A. Jafari, F. Shahbazi, *Eur. Phys. Lett.* **90** (2010) 17003.
62. M. B. Fathi, S. A. Jafari, *Physica B* **405** (2010) 1658.
63. M. Hafez, S. A. Jafari, M. R. Abolhassani, *Phys. Lett. A* **373** (2009) 4479.
64. M. Amini, S. A. Jafari, F. Shahbazi, *Eur. Phys. Lett.* **87** (2009) 37002 .
65. M. Ebrahimkhas, S. A. Jafari, *Phys. Rev. B* **79** (2009) 205425.
66. S. A. Jafari, *Eur. Phys. J. B* **68** (2009) 537.
67. Z. Noorbakhsh, F. Shahbazi, S. A. Jafari, G. Baskaran, *JPSJ* **78** (2009) 054701.
68. S. A. Jafari, *Int. J. Mod. Phys. B* **23** (2009) 395.
69. S. A. Jafari, *Opt. Commun.* **282** (2009) 317.

70. M. Alaei, S. A. Jafari, H. Akbarzadeh, *J. Phys. Chem. Sol.* **69** (2008) 3283.
71. S. A. Jafari, *Iranian J. Phys. Res.* **8** No. 2 (2008) 113.
72. S. A. Jafari, T. Tohyama, S. Maekawa, *J. Phys. Soc. Jon.* **76** (2007) 044706.
73. S. A. Jafari, T. Tohyama, S. Maekawa, *J. Mag. Mag. Mat.* **310** (2007) 960.
74. S. A. Jafari, T. Tohyama, S. Maekawa, *JPSJ* (Letter) **75** (2006) 083706.
75. S. A. Jafari, T. Tohyama, S. Maekawa, *J. Phys. Soc. Jpn.* **75** (2006) 054703.
76. S. A. Jafari, G. Baskaran, *Eur. Phys. Jour. B* **43** (2005) 175.
77. G. Baskaran, S.A. Jafari, *Phys. Rev. Lett.* **92** (2004) 199702.
78. G. Baskaran, S. A. Jafari, *Phys. Rev. Lett.* **89** (2002) 016402.

Preprints:

1. K. Haghighi Mood, S. A. Jafari, E. Adibi, G. Baskaran, M. R. Abolhassani, arXiv: 1107.4208
2. A. Youssefi, M. Ansari-Fard, S. A. Jafari, arXiv: 1608.03948 (2016)
3. A. Moradpouri, M. Torabian, S. A. Jafari, arxiv:2007.03276 (under review in Phys. Rev. B)

In preparation:

1. S. A. Jafari, *The SYK proximity effect*
2. S. A. Jafari, J. Koenig, *Inter-valley paramagnons in two dimensional Dirac materials*
3. Z. Jalalimola, S. A. Jafari, *Titl-induces many-body corrections to the optical conductivity of tilted Dirac cone materials*

Conference Contributions:

1. Conference on Signatures of Topology in Condensed Matter, 21-25 Oct. 2019, ICTP, Italy (**Contributed speaker**)
2. 6th National Conference on Progress in Superconductivity, Univ. of Tehran, 1-2 May 2019, Tehran, Iran (**Invited speaker**)
3. 14th Condensed matter physics conference, Physical Society of Iran, 6-7 Feb. 2019, Ahwaz, Iran (**Keynote speaker**)
4. Asia Pacific Workshop (APW) and workshop on Diluted Magnetic Semiconductors, 1-5 Nov. 2018, Beijing (**Invited Talk**)
5. Conference on quantum dynamics of disordered interacting systems, ICTP, Trieste, Italy, 11-15 July 2018 (**Contributed Talk**)
6. Asia Pacific Workshop, Feb. 2017, Korea (**Invited Talk**)
7. Conference on Interactions and Topology in Dirac systems, ICTP, Trieste, Italy, Aug. 2016 (**Contributed Talk**)
8. Asia Pacific Workshop, Zheijiang University, April 2015, (**Invited Talk**)
9. International workshop on Dirac Electrons in Solids, Univ. of Tokyo, Jan. 2015 (**Contributed Talk**)

10. Advanced mini-workshop on recent progress in graphene, March 2014, Kish, Iran (**Invited Talk**)
11. Fifth International conference in Nanostructures (ICNS5), March 2014, Kish, Iran (**Invited Talk**)
12. National Conference on Advances in Superconductivity, June. 2012, Kashan, Iran (**Invited Talk**)
13. 1st NAREGI international Nanoscience Conference, June 2005, Nara, Japan.
14. National Conference on Condensed Matter and Materials Physics, Jan. 2006 Baroda, India.
15. International Conference on Magnetism, Aug. 2006, Kyoto, Japan.
16. Spectroscopies in Novel Superconductors, Aug. 2006, Sendai, Japan.
17. Novel Quantum Phenomena in Graphene, Dec. 2006, Chennai, India (**Invited Talk**).
18. The international symposium on Anomalous Quantum Materials 2006 and the 5th Asia-Pacific Workshop, Okinawa, Japan.
19. International Symposium on Anomalous Quantum Materials 2008 and the 7th Asia-Pacific Workshop, Tokyo, Japan (**Contributed Talk**)
20. Conference on Magnetism, Superconductivity and phase transitions in novel and complex Materials (MSM09), Nov. 2009, Kolkata, India (**Invited Talk**).
21. 3rd Materials Science School for Young Scientists, Aug. 2006, Akiu, Sendai, Japan.
22. 12th Condensed Matter meeting, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran, Spring 2006 (**Invited Talk**)

Lecture notes:

1. S. A. Jafari, *Solid State Physics*, (in Persian), Evolving translation of the textbook of Ibach and Luth. Substance for bilingual Deutsch-Persian compilation.
2. S. A. Jafari, *Computational Physics* (in Persian), Evolving manuscript.
3. S. A. Jafari, *Many-body quantum theory* (in Persian), Evolving manuscript.

External fundings received by S. A. Jafari[1]

1. National elites foundation of Iran, 200M IRR (equivalent to nearly 18,500 Euro at the time~24 MSAPI[2]): Early career assistant professors, Isfahan Univ of Tech, 2008
2. National elites foundation of Iran, 150M IRR (equivalent to nearly 5,500 Euro at the time~9 MSAPI) for early career assistant professors, Sharif Univ. of Tech., 2010
3. Japan Society for promotion of Science, Invitation Program Fellowship (for inviting young outstanding scientists), hosted by Professor T. Tohyama at Kyoto University, 2013, nearly 4000 Euro + travel support
4. Alexander von Humboldt fellowship for experienced researchers, 2014-2017. Included 21 months salary + a research fund via my host, Prof. Dr. Juergen Koenig.
5. Iran Science Elites Federation (ISEF): Regular travel grants for talks in international conferences (awarded to less than 10 scientists/year in the entire country).
6. Iran Science Elites Federation fund to hire post doctoral researchers (Dr. Zahra Faraei for 18 months 2017, 2018)
7. Iran National Science Foundation (INSF) fund to hire post doctoral researchers (Dr. Tohid Farajollahpour, 1+1 year)
8. Junior Associate Member of the Abdus Salam International Center for theoretical physics (2004-2017): Regular travel support + 400 Euro/year book quota
9. Regular Associate Member of the Abdus Salam ICTP, 2020-2025
10. Minimum post doctoral salary for 6+6 months raised from **donations** (Dr. Zahra Faraei and Dr. Tohid Farajollahpour), 2016
11. Two post doctoral fund and 300,000,000 IRR research fund, ISEF (to hire Dr. Zahra Jalalimola and Dr. Zahra Faraei) 2019-2020
12. Sharif University of Technology grant 1,100,000,000 IRR (~27 MSAPI) to support graduate students (2019)
13. One post doctoral fund + 300,000,000 IRR (~8 MSAPI) research fund from ISEF, 2020-2021
14. Special fund 700,000,000 IRR (~18 MSAPI) from science and technology deputy of the president to hire two post docs (2020-2021)
15. I am foreign collaborator of a GBP 200,000 fund won by Dr. Gunnar Moeller of Kent Univ. (UK), to explore possible role of solid-state spacetimes in superconductivity.

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[1] Note that the Euro equivalent of the above funds in Iranian Rials (IRR) is not a suitable measure, as it does not include a factor related to the economy of the countries and wildly varies from year to year, and also does not account for the sanctions under which we have worked in Iran. Perhaps a good measure is to scale the amounts to monthly salary of an assistant professor at any given period.

[2] Monthly Salary of Assistant Professor in Iran.