

CURRICULUM VITAE

Neda Sadooghi
Professor of Physics

Department of Physics
Sharif University of Technology
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POSITION

Sharif University of Technology, Tehran, Iran

11/2013 – Present Professor, Department of Physics
11/2007 - 11/2013 Associate Professor, Department of Physics
01/2006 - 11/2007 Assistant Professor, Permanent Position (tenured)
09/2000 - 01/2006 Assistant Professor, Department of Physics
09/1999 - 09/2000 Lecturer, Department of Physics

Institute for Theoretical Physics and Mathematics (IPM), Tehran, Iran

01/2006 - 01/2007 Nonresident Research Fellow, School of Physics
04/1999 - 12/2005 Resident Research Assistant, School of Physics

Université Louis Pasteur, Strasbourg, France

02/1998 - 03/1999 Postgraduate Researcher, Laboratoire de Physique Théorique
Advisor: Prof. Janos Polonyi

EDUCATION

Ruprecht-Karls University, Heidelberg, Germany

02/1998 PhD in Physics
Supervisor: Prof. Heinz J. Rothe
09/1993 MSc in Physics
Supervisor: Prof. Heinz J. Rothe
06/1987 German universities entrance qualification exam
Final exam at ``Studienkolleg''

High-School, Tehran, Iran

06/1985 High School Diploma

EXECUTIVE POSITIONS

Department of Physics, Sharif University of Technology, Tehran, Iran

01/2022 – present Department Chair
09/2017 – 09/2020 Vice-Chair in Graduate Studies' Affairs, Department of Physics
07/2012 – 10/2014 Vice-Chair of Education, Department of Physics
08/2009 – 08/2020 Member of Exceptional Talent Council
09/2006 – 09/2008 Vice-Chair in Graduate Studies' Affairs, Department of Physics
09/2005 – 09/2006 Vice-Chair of Education, Department of Physics

TEACHING EXPERIENCE

Department of Physics, Sharif University of Technology, Tehran, Iran

P= PhD, M=MSc, U=Undergraduate, S=Spring Semester, FS=Fall Semester

FS 2003, 2005, 2008, 2011, 2013;	Quantum Field Theory I	[P]
SS 2016, 2018, 2020, 2022, 2024		
SS 2004, 2006, 2009, 2012, 2014;	Quantum Field Theory II	[P]
FS 2016, 2018, 2020, 2022, 2024		
FS 2004, 2006, 2009, 2012, 2014;	Quantum Field Theory III	[P]
SS 2017, 2019, 2021		
SS 2007	Quantum Chromodynamics	[P]
SS 2000, 2001, 2005, 2008, 2009, 2023;	Classical Mechanics	[M]
FS 2003		
FS 1999, 2002 (with Prof. C. DeWitt-Morette)	Mathematical Physics	[M]

	SS 2010, 2013	Thermal Field Theory	[M]
	SS 2011, 2015, 2016, 2019, 2023	Elementary Particle Physics	[M+U]
	FS 2002, 2006	Analytical Mechanics I	[U]
	SS 2003, 2007	Analytical Mechanics II	[U]
	FS 2001, 2002; SS 2005, 2021	Quantum Mechanics I	[U]
	SS 2002, 2003; FS 2005, 2021	Quantum Mechanics II	[U]
	FS 2017, 2018, 2019, 2022	Quantum Mechanics III	[M]
	SS 2002	Mathematical Physics I	[U]
	FS 2024	General Physics I	[U]
SUMMER SCHOOL LECTURES	Summer School on Phenomenology Aspects of Elementary Particle Physics, Tehran-Iran (2 lectures)		09/2005
RESEARCH INTERESTS	Thermal Field Theory, QCD under Extreme Conditions, Noncommutative Field Theory		
VISITS	<p>07/2018 Dept. of Theoretical Physics, Munich University of Technology, Germany</p> <p>08/2012 Dept. of Theoretical Physics, CERN, Geneva, Switzerland</p> <p>06/2012 Dept. of Theoretical Physics, Goethe University, Frankfurt, Germany</p> <p>07/2009 Dept. of Theoretical Physics, Munich University of Technology, Germany</p> <p>07/2009 Dept. of Theoretical Physics, University of Heidelberg, Germany</p> <p>02/2009 Dept. of Theoretical Physics, Munich University of Technology, Germany</p> <p>07/2007 Dept. of Theoretical Physics, University of Heidelberg, Germany</p> <p>07/2007 Dept. of Theoretical Physics, Humboldt University, Berlin, Germany</p> <p>09/2003 Dept. of Theoretical Physics, University of Heidelberg, Germany</p> <p>09/2003 Dept. of Theoretical Physics, Humboldt University, Berlin, Germany</p> <p>04/2002 Dept. of Theoretical Physics, CERN, Geneva, Switzerland</p> <p><i>CERN= The European Organization for Nuclear Research</i></p>		
SABBATICAL LEAVE	<i>Munich University of Technology (TUM), Munich, Germany</i>		
	09/2010 – 01/2011	Institute for Theoretical Physics (Chair: Prof. Nora Brambilla)	
POST-DOCTORAL RESEARCH FELLOW	Dr. Sh. Fayazbakhsh		09/2011 - 01/2015
	School of particles and accelerators (IPM), Tehran, Iran		
	Dr. M. Kiamari		09/2020 - present
	School of particles and accelerators (IPM), Tehran, Iran		
PHD STUDENTS SUPERVISION	<i>Department of Physics. Sharif University of Technology, Tehran, Iran</i>		
	[6] Dr. S.M.A. Tabatabaee , " <i>The effect of magnetization on the evolution of the plasma of quarks and gluons</i> "		2016 - 2020
	[5] Dr. M. Shokri on " <i>Evolution of electromagnetic fields in a plasma of quarks and gluons</i> "		2015 - 2019
	[4] Dr. F. Taghinavaz on " <i>The effects of finite temperature and background magnetic fields on the observables of heavy ion collisions</i> "		2012 - 2017
	[3] Dr. Sh. Fayazbakhsh on " <i>Effect of external magnetic fields on 2SC color-superconductivity</i> "		2007 - 2011
	[2] Dr. A. A. Varshovi on " <i>Noncommutative anomaly</i> " (Co-Advisor: F. Ardalan)		2008 - 2011

- [1] **Dr. M. Ghasemkhani** on “*Noncommutative gauge theory in two dimensions*” (Co-Advisor: F. Ardalan) 2006 - 2010

CURRENT PhD STUDENTS

- [01] **E. Siri** on QCD Phase diagram 2022 -

MSc STUDENTS SUPERVISION

Department of Physics, Sharif University of Technology, Tehran, Iran

- [01] M. Mohammadi Najafabadi 2002
 [02] M. Soroush 2002
 [03] M. Noorbala 2005
 [04] A. Jafari-Salim 2006
 [05] A. Sodeiri-Jalili 2006
 [06] D. Allahbakhshi 2007
 [07] K. Sohrabi-Anaraki 2009
 [08] Z. Davoodi 2009
 [09] S. Sadeghian 2011
 [10] F. Taghinavaz 2011
 [11] A. Barzegar 2012
 [12] O. Hajizadeh (Co-Advising with Sh. Rouhani) 2012
 [13] B. Salehi Kasmaei 2012
 [14] S.M.A. Tabatabaee 2013
 [15] A. Jalooli 2014
 [16] A. Jamshidi 2019
 [17] Y. Hosseini 2019
 [18] A. Hosseinzadeh 2019
 [19] M. H. Gholami 2020
 [20] M. Rahbardar Mojaver 2021
 [21] H. Mortazavi Ghalati 2022
 [22] M. Sedighi Jafari 2023
 [23] M. Sh. Sadeghi 2024
 [24] B. Karami 2024

CURRENT MSc STUDENTS

Department of Physics, Sharif University of Technology, Tehran, Iran

M. Abedlou (2023 – present)

THESES

Ruprecht-Karls University, Heidelberg, Germany

- One-loop perturbative study of the continuum behavior of fermionic formulations of lattice QED using the small- a expansion* (PhD thesis, in German) 1994 - 1998
Staggered fermions in U(1) lattice gauge theory with finite chemical potential (Master thesis, in German) 1992 - 1993

PUBLICATIONS

➤ **Papers in Refereed Journals**

- [37] E. Siri and **Néda Sadooghi**, Thermodynamic properties of a relativistic Bose gas under rigid rotation, Phys. Rev. **D110** (2024) 036016
 [36] M. Kiamari, **Néda Sadooghi**, and M. Sedighi Jafari, Relativistic magnetohydrodynamics of a spinful and vertical fluid: Entropy current analysis, Phys. Rev. **D109** (2024) 036024
 [35] H. Mortazavi Ghalati and **Néda Sadooghi**, Magnetic dual chiral density wave in a rotating cold quark matter, Phys. Rev. **D108** (2023) 054032

- [34] **Néda Sadooghi**, S.M.A. Tabatabaee, and F. Taghinavaz, *Inverse magnetorotational catalysis and the phase diagram of a rotating hot and magnetized quark matter*, Phys. Rev. **D104** (2021) 116022
- [33] M. Kiamari, M. Rahbardar, M. Shokri, and **Néda Sadooghi**, *Anomalous Hall instability in the Chern-Simons magnetohydrodynamics*, Phys. Rev. **D104** (2021) 076023
- [32] S.M.A. Tabatabaee and **Néda Sadooghi**, *Wigner function formalism and the evolution of thermodynamic quantities in an expanding magnetized plasma*, Phys. Rev. **D101** (2020) 076022
- [31] **Néda Sadooghi** and S.M.A. Tabatabaee, *Paramagnetic squeezing of a uniformly expanding quark gluon plasma in and out of equilibrium*, Phys. Rev. **D99** (2019) 056021
- [30] M. Shokri and **Néda Sadooghi**, *Evolution of magnetic fields from the 3+1 dimensional self-similar and Gubser flows in ideal relativistic magneto-hydrodynamics*, JHEP **1811** (2018) 181
- [29] **Néda Sadooghi** and M. Shokri, *Rotating solutions of nonideal transverse Chern-Simons magnetohydrodynamics and the anomalous Hall current*, Phys. Rev. **D98** (2018) 076011
- [28] M. Shokri and **Néda Sadooghi**, *Novel self-similar rotating solutions of non-ideal transverse magnetohydrodynamics*, Phys. Rev. **D96** (2017) 116008
- [27] **Néda Sadooghi** and S.M.A. Tabatabaee, *The effect of magnetization and electric polarization on the anomalous transport coefficients of a chiral fluid*, New J. Phys. **19** (2017) 053014
- [26] **Néda Sadooghi** and F. Taghinavaz, *Dilepton production rates in a hot and magnetized quark-gluon plasma*, Annals of Physics **376** (2017) 218
- [25] **Néda Sadooghi** and F. Taghinavaz, *Magnetized plasminos in cold and hot QED plasmas*, Phys. Rev. **D92** (2015) 025006
- [24] Sh. Fayazbakhsh and **Néda Sadooghi**, *Anomalous magnetic moment of hot quarks, inverse magnetic catalysis and reentrance of the chiral symmetry broken phase*, Phys. Rev. **D90** (2014) 105030
- [23] **Néda Sadooghi** and F. Taghinavaz, *Contribution of plasminos to the shear viscosity of a hot and dense Yukawa-Fermi gas*, Phys. Rev. **D89** (2014) 125005
- [22] Sh. Fayazbakhsh and **Néda Sadooghi**, *Weak decay constant of neutral pions in a hot and magnetized quark matter*, Phys. Rev. **D88** (2013) 065030
- [21] F. Ardalan, H. Arfaei, M. Ghasemkhani and **Néda Sadooghi**, *Gauge invariant cutoff QED*, Phys. Scripta (2013) 035101
- [20] Sh. Fayazbakhsh, S. Sadeghian and **Néda Sadooghi**, *Properties of neutral mesons in a hot and magnetized quark matter*, Phys. Rev. **D86** (2012) 085042
- [19] **Néda Sadooghi** and F. Taghinavaz, *Local electric current correlation function in exponentially decaying magnetic fields*, Phys. Rev. **D85** (2012) 125035
- [18] F. Ardalan, M. Ghasemkhani and **Néda Sadooghi**, *On the mass spectrum of noncommutative Schwinger model in Euclidean R^2 space*, Eur. Phys. J. **C71** (2011) 1606
- [17] Sh. Fayazbakhsh and **Néda Sadooghi**, *Phase diagram of hot magnetized two-flavor superconducting quark matter*, Phys. Rev. **D83** (2011) 025026
- [16] F. Ardalan and **Néda Sadooghi**, *Translational-invariant noncommutative gauge theory*, Phys. Rev. **D83**, (2011) 025014
- [15] Sh. Fayazbakhsh and **Néda Sadooghi**, *Color neutral 2SC phase of cold and dense quark matter in the presence of constant magnetic fields*, Phys. Rev. **D82** (2010) 045010
- [14] M. Ghasemkhani and **Néda Sadooghi**, *Perturbative quantization of two-dimensional space-time noncommutative QED*, Phys. Rev. **D81** (2010) 045014

- [13] **Néda Sadooghi** and K. Sohrabi Anaraki, *Improved ring potential of QED at finite temperature and in the presence of weak and strong magnetic fields*, Phys. Rev. **D78** (2008) 125019
- [12] **Néda Sadooghi** and A. Sodeiri Jalili, *New look at the modified Coulomb potential in a strong magnetic field*, Phys. Rev. **D76** (2007) 065013
- [11] **Néda Sadooghi** and A. Jafari Salim, *Axial anomaly of QED in a strong magnetic field and noncommutative anomaly*, Phys.Rev. **D74** (2006) 085032
- [10] A. Jafari Salim and **Néda Sadooghi**, *Dynamics of $O(N)$ model in a strong magnetic background field as a modified noncommutative Field Theory*, Phys. Rev. **D73** (2006) 065023
- [09] F. Ardalan, H. Arfaei and **Néda Sadooghi**, *On the anomalies and Schwinger terms in noncommutative gauge theories*, Int. J. Mod. Phys. **A21** (2006) 4161
- [08] F. Ardalan and **Néda Sadooghi**, *Planar and nonplanar Konishi anomalies and exact Wilsonian effective superpotential for noncommutative $N=1$ super-symmetric $U(1)$* , Int. J. Mod. Phys. **A20** (2005) 2859
- [07] M. Alishahiha, A. Ghodsi and **Néda Sadooghi**, *One-loop perturbative corrections to non-anti-commutativity parameter of $N=1/2$ supersymmetric $U(N)$ gauge theory*, Nucl. Phys. **B691** (2004) 111
- [06] **Néda Sadooghi** and M. Mohammadi, *On the β -function and conformal anomaly of noncommutative QED with adjoint matter fields*, Int. J. Mod. Phys. **A18** (2003) 2591
- [05] **Néda Sadooghi** and M. Soroush, *Noncommutative dipole QED*, Int. J. Mod. Phys. **A18** (2003) 97
- [04] F. Ardalan and **Néda Sadooghi**, *Anomaly and nonplanar diagrams in noncommutative gauge theories*, Int. J. Mod. Phys. **A17** (2002) 123
- [03] F. Ardalan and **Néda Sadooghi**, *Axial anomaly in noncommutative QED on R^4* , Int. J. Mod. Phys. **A16** (2001) 3151
- [02] H. J. Rothe and **Néda Sadooghi**, *A new look at the axial anomaly in lattice QED with Wilson fermions*, Phys. Rev. **D58** (1998) 074502
- [01] **Néda Sadooghi** and H. J. Rothe, *Continuum behavior of lattice QED, discretized with one-sided lattice differences, in one-loop order*, Phys. Rev. **D55** (1997) 6749

➤ **Preprint**

- [1] **Néda Sadooghi**, *Chiral MHD description of a non-dissipative magnetized QGP fluid using the effective NJL model in a strong magnetic field*, arXiv: 0905.2097

➤ **Works in Progress**

- [1] Thermodynamics of a rotating Bose gas, with E. Siri

➤ **Papers in Conference Proceedings**

- [1] Sh. Fayazbakhsh and **Néda Sadooghi**, *Two-flavor color superconductivity at finite temperature, chemical potential and in the presence of strong magnetic field*, arXiv: 1302.0622, Quark Confinement and the Hadron Spectrum X, October 8-12, Munich, Germany
- [2] **Néda Sadooghi**, *Modified Coulomb potential of QED in a strong magnetic field*, PoS (LATTICE 2007) 082, Talk presented in XXV International Symposium on Lattice Field Theory, July 30-August 4, 2007, Regensburg, Germany
- [3] F. Ardalan and **Néda Sadooghi**, *Exact Wilsonian superpotential for noncommutative $N=1$ supersymmetric $U(1)$* : Talk presented by N. Sadooghi in *Teheran 2004, Mathematical Physics*, 162-165

- [4] **Néda Sadooghi** and F. Taghinavaz, *Contribution of plasminos to the shear viscosity of a hot and dense Yukawa-Fermi gas*, Poster presented by F. Taghinavaz in XIth Quark Confinement and the Hadron Spectrum", Saint-Petersburg, Russia, 8-12 September 2014
- [5] M. Shokri and **Néda Sadooghi**, Talk presented by M. Shokri in XIIth Quark Confinement and the Hadron Spectrum", Maynooth, Ireland, 31 July - 6 August 2018, to be published in PoS (2019)
- [6] S.M.A. Tabatabaee and **Néda Sadooghi**, Poster presented by S.M.A. Tabatabaee in XIIIth Quark Confinement and the Hadron Spectrum", Maynooth, Ireland, 31 July - 6 August 2018, to be published in PoS (2019)

➤ **Edited Books**

Mathematical Physics: Proceedings of XI Regional Conference
Tehran-Iran, May 3-6, 2004

Editors: S. Rahvar, F. Shojaei and **Néda Sadooghi**, World Scientific Publishing Co. 2005

**CONFERENCES,
WORKSHOPS
AND WEEKLY
SEMINARS**

➤ **Presentation in International, Regional and National Conferences**

- 01/2018 IPM Workshop on collective phenomena and heavy ion physics, IPM, Iran
- 09/2015 Annual conference, Physical Society of Iran, Mashhad, Iran
- 10/2014 Workshop on QCD and QED, IPM, Tehran, Iran
- 05/2014 Quark Matter 2014, Darmstadt, Germany (Poster)
- 04/2014 Third School and Workshop on AdS/CFT and its Applications, Tehran, Iran
- 05/2013 Second School and Workshop on AdS/CFT and its Applications, Tehran, Iran
- 07/2009 Mideast 2009, Fifth Regional Meeting on String Theory, Crete, Greece
- 02/2009 47th Winter School on Theoretical Physics, Schladming, Austria (Poster)
- 06/2008 PASCOS 2008, Waterloo, Canada
- 08/2007 LATTICE 2007 Regensburg, Germany
- 07/2007 Mideast 2007, Fourth Regional Meeting on String Theory, Patras, Greece
- 05/2006 IPM School and Conference on Lepton and Hadron Physics, Tehran, Iran
- 04/2006 ISS 2006, Intl. School and Workshop on String Theory, Tehran, Iran
- 09/2005 NCG 2005, Intl. Workshop on Noncommutative Geometry, Tehran, Iran
- 07/2005 Mideast 2005, Third Regional Meeting on String Theory, Crete, Greece
- 06/2005 Spring Conference on Theoretical Physics, IPM, Tehran, Iran
- 01/2005 ISS 2005, Intl. School and Workshop on String Theory, Qeshm, Iran
- 06/2004 Spring Conference on Theoretical Physics, IPM, Tehran, Iran
- 05/2004 11th Regional Meeting on Mathematical Physics, Tehran, Iran
- 10/2003 ISS 2003, Intl. School and Workshop on String Theory, Anzali, Iran
- 06/2003 Spring Conference on Theoretical Physics, IPM, Tehran, Iran
- 06/2002 Spring Conference on Theoretical Physics, IPM, Tehran, Iran
- 05/2002 ISS 2002, Intl. School and Workshop on String Theory, Shiraz, Iran
- 09/2001 School and Workshop on Logarithmic Conformal Field Theory, Tehran, Iran
- 06/2001 Spring Conference on Theoretical Physics, IPM, Tehran, Iran
- 06/2001 Mideast 2001, First Regional Meeting on String Theory, Crete, Greece
- 06/2000 Spring Conference on Theoretical Physics, IPM, Tehran, Iran
- 05/2000 ISS 2000, Intl. School and Workshop on String Theory, Isfahan, Iran
- 06/1999 Spring Conference on Theoretical Physics, IPM, Tehran, Iran

➤ **Speaker at Weekly Seminars**

- 07/2018 Dept. of Theoretical Physics, Munich University of Technology, Germany
- 07/2012 Dept. of Theoretical Physics, University of Heidelberg, Germany
- 07/2012 Dept. of Theoretical Physics, Goethe University, Frankfurt, Germany
- 11/2010 Dept. of Theoretical Physics, Munich University of Technology, Germany

07/2009 Dept. of Theoretical Physics, Munich University of Technology, Germany
 07/2009 Dept. of Theoretical Physics, University of Heidelberg, Germany
 02/2009 Dept. of Theoretical Physics, Munich University of Technology, Germany
 07/2007 Dept. of Theoretical Physics, University of Heidelberg, Germany
 07/2007 Dept. of Theoretical Physics, Humboldt University, Berlin, Germany
 09/2003 Dept. of Theoretical Physics, University of Heidelberg, Germany
 09/2003 Dept. of Theoretical Physics, Humboldt University, Berlin, Germany
 04/2002 Dept. of Theoretical Physics, CERN, Geneva, Switzerland

➤ **Conference and Workshop Participations**

07/2005 Post-Conference, Strings at CERN, Geneva, Switzerland
 06/2004 Strings 2004, Paris, France
 01/2001 Strings 2001, Mumbai, India
 04/2002 Spring School on Superstring and Related Matter, Trieste, Italy
 04/2001 Spring School on Superstring and Related Matter, Trieste, Italy
 04/2000 Spring School on Superstring and Related Matter, Trieste, Italy
 07/1998 International Conference; QCD at finite baryon density, Bielefeld, Germany

FELLOWSHIPS

➤ **Ruprecht-Karls University, Heidelberg, Germany**

PhD Fellowship, German Research Council (DFG) 1994-1998

HONORS

➤ **Sharif University of Technology, Tehran, Iran**

Distinguished lecturer, Department of Physics 2013

MEMBER IN ORGANIZATION COMMITTEES

➤ **Conferences and Workshops**

Mini-Workshop on Particle Physics, Higgs Day, October 7, 2012, Department of Physics, Sharif University of Technology, Tehran, Iran 10/2012

XI Regional Conference in Mathematical Physics, May 3-6, 2004, Tehran, Iran 05/2004

➤ **Colloquia**

Physics Department Colloquia, Department of Physics Sharif University of Technology, Tehran, Iran 2007- 2020

REFEREE SERVICES

Physical Review D, American Physical Society (APS)
 Physical Society of Iran (PSI)

LANGUAGES

English, German, French, and Persian (native)

**September 2024
 Tehran, Iran**