Hossein Safari

Professor on Physics,
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Websites & Social Links

https://www.znu.ac.ir/members/safari_hossein/
https://orcid.org/0000-0003-2326-3201

Awards

Distingushed National researcher and Saramadan-Elmi Award 2015-2016

Education

2002-2007: Ph. D. in physics, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran.

Ph.D. Thesis: Solar Coronal Plasma Heating

1999- 2001: MSc in physics, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran

Msc Thesis: Applications of Extended Phase Space and Quantum Canonical Transformations.

1996- 1999: B.Sc. in Physics, Department of Physics, Zanjan University

Membership

- International Astronomical Unions
  http://www.iau.org/administration/membership/individual/15527/
- Astronomical Society of Iran
  http://www.asi.ir/about1_e.asp
- The Physics Society of Iran
  http://www.psi.ir/

Teaching Experiences:

1. Computational Physics

2. Astronomy

3. Astrophysics

4. Solar Physics

5. Special and general relativity

6. Classical Mechanics

7. Electromagnetism

8. Modern Physics

9.Thermodynamics and statistical physics

Published Books:

Book title	Kind of Publication	Publisher	Author/Authors	Translator/Translators	Publacation Date	PDF FILE
Experiments of Fundamental Physics 3	Writing	University of Zanjan	Hossein Safari, Somayeh Taran		October 2019	
	Writing	Daneshnegar	Hossein Safari, Somayeh Bazargan			
Solar Magnetohydrodynamic	Translation	University of Zanjan	Eric Priest	Hossein Safari, Roya Ghanadi, Nasibe Alipourrad, Nastaran Farhang, Somayeh Taran	September 2019	
Solar Magnetohydrodynamic	Translation	University of Zanjan	Eric Priest	Hossein Safari, Roya Ghanadi, Nasibe Alipourrad, Nastaran Farhang	May 2019	

Research Projectes

Project title	Responsibility	Start Date	End Date	Kind of Project	Commander	Availibility
Studying the effects of solar magnetic phenomena on geo magnetic disturbances and impacts on Iran power network	Leader	2016	2020_		INSF	

Publications in international refereed journals

Energetics of Solar Coronal Bright Points

Journal: **The Astrophysical Journal, Q1**
2021 | journal-article DOI: 10.3847/1538-4357/abc8e8

Ultraviolet solar flare signatures in the framework of complex network

Journal: Chaos: An Interdisciplinary Journal of Nonlinear Science, Q1
2020-04 | journal-article DOI: 10.1063/1.5129433

Age dating of an early Milky Way merger via asteroseismology of the naked-eye star ν Indi

Journal: Nature Astronomy, Q1
2020-01-13 | journal-article DOI: 10.1038/s41550-019-0975-9

The first view of δ Scuti and γ Doradus stars with the TESS mission

Journal: Monthly Notices of the Royal Astronomical Society, Q1
2019-10-07 | journal-article DOI: 10.1093/mnras/stz2787

Energy Balance in Avalanche Models for Solar Flares

Journal: The Astrophysical Journal, Q1
2019-09-23 | journal-article DOI: 10.3847/2041-8213/ab40c3

Kappa-Maxwellian Electrons and Bi-Maxwellian Protons in a Two-fluid Model for Fast Solar WindThe

Journal: The Astrophysical Journal, Q1
2019-09-13 | journal-article DOI: 10.3847/1538-4357/ab372b

Rotation and pulsation in Ap stars: first light results from TESS sectors 1 and 2

Journal: Monthly Notices of the Royal Astronomical Society, Q1
2019-08-11 | journal-article DOI: 10.1093/mnras/stz1332

Prediction of Flares within 10 Days before They Occur on the Sun

Journal: The Astrophysical Journal Supplement Series, Q1
2019-07-23 | journal-article DOI: 10.3847/1538-4365/ab289b

Statistics of photospheric supergranular cells observed by SDO/HMI

Journal: Advances in Space Research, Q3
2019-07 | journal-article DOI: 10.1016/j.asr.2019.04.027

The star formation history of the M31 galaxy derived from Long-Period-Variable star counts

Journal: Proceedings of the International Astronomical Union
2018-08 | journal-article DOI: 10.1017/s1743921318007275

Principle of Minimum Energy in Magnetic Reconnection in a Self-organized Critical Model for Solar Flares

Journal: The Astrophysical Journal, Q1
2018-05-23 | journal-article DOI: 10.3847/1538-4357/aac01b

The Solar Flare Complex Network

Journal: The Astrophysical Journal, Q1
2017-09-28 | journal-article DOI: 10.3847/1538-4357/aa8951

Complex Network for Solar Active Regions

Journal: The Astrophysical Journal, Q1
2017 | journal-article DOI: 10.3847/1538-4357/aa7ddf

PREDICTION of SOLAR FLARES USING UNIQUE SIGNATURES of MAGNETIC FIELD IMAGES

Journal: The Astrophysical Journal, Q1
2017 | journal-article DOI: 10.3847/1538-4357/834/1/11

The effects of near-core convective shells on the gravity modes of the subdwarf B pulsator KIC 10553698A

Journal: Monthly Notices of the Royal Astronomical Society, Q1
2017 | journal-article DOI: 10.1093/mnras/stw2839

Torsional wave propagation in solar tornadoes

Journal: Astronomy and Astrophysics, Q1
2017 | journal-article DOI: 10.1051/0004-6361/201629563

Classification of mini-dimmings associated with extreme ultraviolet eruptions by using graph theory

Journal: Iranian Journal of Physics Research
2016 | journal-article EID: 2-s2.0-85025710614

Extraction of Active Regions and Coronal Holes from EUV Images Using the Unsupervised Segmentation Method in the Bayesian Framework

Journal: Solar Physics, Q2
2016 | journal-article DOI: 10.1007/s11207-016-0883-4

Magnetic Evolution of Mini-Coronal Mass Ejections

Journal: Solar Physics, Q2
2016 | journal-article DOI: 10.1007/s11207-016-0858-5

Motion and Magnetic Flux Changes of Coronal Bright Points Relative to Supergranular Cell Boundaries

Journal: Solar Physics, Q2

2016 | journal-article DOI: 10.1007/s11207-015-0809-6

Source: Hossein Safari *via* Scopus - Elsevier

Wave function properties of a single and a system of magnetic flux tube(s) oscillations

Journal: Journal of Geophysical Research A: Space Physics, Q1

2016 | journal-article DOI: 10.1002/2016JA022848 **Source:** Hossein Safari *via* Scopus - Elsevier

A hybrid algorithm for feature subset selection in high-dimensional datasets using FICA and IWSSr algorithm

Journal: Applied Soft Computing Journal, Q1

2015 | journal-article DOI: 10.1016/j.asoc.2015.03.049 **Source:** Hossein Safari *via* Scopus - Elsevier

STATISTICAL PROPERTIES of SOLAR CORONAL BRIGHT POINTS

Journal: The Astrophysical Journal, Q1

2015 | journal-article DOI: 10.1088/0004-637X/807/2/175 **Source:** Hossein Safari *via* Scopus - Elsevier

Automated tracking of solar coronal loops and detection of their oscillations
Journal: Iranian Journal of Physic Journal:s Research

2014 | journal-article EID: 2-s2.0-85016152129

Automatic Method for Identifying Photospheric Bright Points and Granules Observed by Sunrise

Journal: Solar Physics, Q2

2014 | journal-article DOI: 10.1007/s11207-014-0555-1 **Source:** Hossein Safari *via* Scopus - Elsevier

An automatic detection method for extreme-ultraviolet dimmings associated with small-scale eruption

Journal: The Astrophysical Journal, Q1

2012 | journal-article DOI: 10.1088/0004-637X/746/1/12 **Source:** Hossein Safari *via* Scopus - Elsevier

Application of genetic algorithm and support vector machine for probing nanoflare parameters

Journal: Iranian Journal of Physics Research

2012 | journal-article EID: 2-s2.0-85027962060

Can a nanoflare model of extreme-ultraviolet irradiances describe the heating of the solar corona?

Journal: The Astrophysical Journal, Q1

2012 | journal-article DOI: 10.1088/0004-637X/744/2/113

Large and small solar coronal mass ejections

Journal: Iranian Journal of Physics Research

2012 | journal-article EID: 2-s2.0-84864072401

Slow-Mode Oscillations and Damping of Hot Solar Coronal Loops

Journal: Solar Physics, Q2

2012 | journal-article DOI: 10.1007/s11207-012-0054-1 **Source:** Hossein Safari *via* Scopus - Elsevier

The effect of non-uniform magnetic field on the slow mode oscillations

Journal: New Astronomy, Q3

2011 | journal-article DOI: 10.1016/j.newast.2010.12.001

Oscillations of coronal loops using Rayleigh-Ritz technique

Journal: New Astronomy, Q3

2010 | journal-article DOI: 10.1016/j.newast.2009.11.008

Transverse oscillations of a longitudinally stratified coronal loop system

Journal:The Astrophysical Journal, Q1

2010 | journal-article DOI: 10.1088/0004-637X/724/1/411

A nanoflare model for active region radiance: Application of artificial neural networks

Journal: Astronomy and Astrophysics, Q1

2008 | journal-article DOI: 10.1051/0004-6361:200810911 **Source:** Hossein Safari *via* Scopus - Elsevier

Fast kink modes of longitudinally stratified coronal loops

Journal: The Astronomy and Astrophysics, Q1

2007 | journal-article DOI: 10.1051/0004-6361:20065997

Resonant absorption in dissipative flux tubes

Journal: Astronomy and Astrophysics, Q1

2006 | journal-article DOI: 10.1051/0004-6361:20053588

Nanoflare model of emission line radiance distributions in active region coronae, 2007, in Modern solar facilities advanced solar science, 2006, Universittsverlag G¨ottingen, ed. F. Kneer, K. G. Puschmann, & A. D. Wittmann, 359

The Effect of Density Stratification on the Modal Structure of Solar Coronal Loops, 2006, IAUJD, 3E, 45S.

An exact property of small oscillation of stars, 25th General Assembly of IAU, Sydney, Australia, abstract book, p.217, 2003. (http://adsabs.harvard.edu/ads abstracts.html).

A Symmetric Treatment of Damped Harmonic Oscillator in Extended Phase Space, Proceeding of Institute of Mathe-matics of NAS of Ukraine (SNMP), 43, 645-651, 2002. (http://www.imath.kiev.ua/˜symmetry/Symmetry2001/Nasiri645-651.pdf).

Supervisor/ Advisor of Projects

Course: PhD

No.	Student	Date of Defence	Field	Topic	Supervisor/ Advisor
9	Narges Fathalian	February 2011		Coronal Loops Oscillations: I. The- orization and Simulation of Mono and System of Loops Oscillation II. SDO EUV Images Analysis	SuperVisor
8	Abbas Abedini	February 2011		Magnetohydrodynamic Slow mode Os- cillations of Solar Corona	SuperVisor
7	Akbar Gheibifetrat	September 2017		1- Non-Gravitational Black Holes and Hawking Radiation, 2- Solar Flares	SuperVisor

				Network	
6	Farhad Daei	December 2017		Complex Network For Solar Active Regions	SuperVisor
5	Nasibe Alipour Rad	October 2016		Identification, tracking, and simulation of atmospheric small scale events	SuperVisor
4	Hamed Ghasemi,	December 2016		Astroseismology of hot subdwarf B stars using Kepller telescope	SuperVisor
3	Mohsen Javaherian	April 2017		statistical relationships between solar magnetic features and solar activity	SuperVisor
2	Nastaran Farhang	October 2018		A cellular automation avalanche model based on optimization of the released energy during solar flares	SuperVisor
1	Somayeh Taran	September 2019		Solar Wind Modeling with Non-Maxwellian Distribution Functions	SuperVisor

Course: M.Sc

No.	Student	Date of Defence	Field	Topic	Supervisor/ Advisor
51	Mohammad Sadeghi	September 2010		Nanoflares Simulation of Solar Corona Irradiance: Application of Genetic Algorithm	SuperVisor
50	Nassibe Alipourrad	December 2010		Solar mini- CMEs	SuperVisor
49	Edris Tajfirouze	February 2011		Probing Nanoflares parameters using Artificial Neutral Network	SuperVisor
48		September 2009		The Effect of Second Order Per- turbations of Velocity and Magnetic Field on Transverse Coronal Loop Oscillations	SuperVisor
47	Sarah Jabbari	August 2009		Magnetohydrodynamic Waves in Curved and Low β-plasma Solar Corona Loops	SuperVisor
46	Azadeh Khoshkroodi	January 2010		Oscillation of Twisted and Longitu- dinally Non-Uniform Magnetic Field of Solar Coronal Loops	SuperVisor
45	Jamil Enayati	September 2010		Observation of Loop Oscillations from EUV Solar Coronal Images	SuperVisor
44	Shervin Ziaei	September 2011		Magnetic Bright Points in the Solar Pho- tosphere	SuperVisor
43	Hamed Altafi Mehrabani	October 2011		Coronal Heating by the Effect of Alfvénic Waves Phase Mixing in Solar Spicules	SuperVisor

42	Somayeh Taran	December 2011		Recognition of Solar Corona Loops EUVI/SDO	SuperVisor
41	Abolfazl Dinmohammadi	January 2012		Observation of Solar Nano-flares from SDO and STEREO images	SuperVisor
40	Mina Mardomi	October 2011		3D Reconstruction of Solar Coronal Loops: Using STEREO A and B	SuperVisor
39	Terife Haddad	January 2012		Oscillation Of SolarCoronal Loops With Non-uniform Magnetic field	SuperVisor
38	Vahid Borji	October 2012		Simulation of Linear Stellar Oscillations	SuperVisor
37	Masoumeh Ghanbarzadeh	October 2012		Study of Stellar Oscillations from Analysis of Photometric Data	SuperVisor
36	Emran Ghanbari	February 2013		Long-wavelength torsional waves in coronal jets	SuperVisor
35	Mohsen Javaherian	February 2013		Automatic Method for Identification of Solar Features	SuperVisor
34	Asadollah Safaei	June 2013		Spectroscopy of fast rotating stars	SuperVisor
33	Somayeh Bazargan	September 2013		Automatic detection of Mini Coro- nal Mass Ejections of Solar extreme ultraviolet eruptions	SuperVisor
32	Nastaran Farhang	October 2013		Detection od Fast and Slow Magneto-hydrodynamic Waves for Solar Coronal Extreme Ultra-Violet Images	SuperVisor
31	Salim Hosseinidavoudkalaei	October 2014		A Multi-label Classifier Method with High Generalization Capacity	SuperVisor
30	Samira Laali	October 2014		Identification of active regions, coronal hole and Pacific regions from Ultraviolet images	SuperVisor
29	Marjan Yousefzadehshabestari	October 2014		Reconstruction of Mag- netic Field of Solar Corona	SuperVisor
28	Leila Khosravian	October 2014		Magnetohydrodynamic waves of multi-strand loops from Exttreme-ultraviolet images	SuperVisor
27	Leila Jahandideh	October 2014		The evaluation of active regions, quiet Sun, and coronal holes on exterem ultraviolet images	SuperVisor
26	Leila Honarbakhsh	December 2014		Studying of the magnetic field of small	SuperVisor

				coronal mass ejections	
25	Mehdi Yousefzadehsouraki	December 2014		Automatic Identification of Supergranular Cell Boundaries	SuperVisor
24	Hasan Ataian	October 2015		Modified Hyperdisk-based Larege Margin classifier	SuperVisor
23	Ebrahim Tohidimoghadam	February 2016		Statistical studies of flares, coronal mass ejections, jets and solar active rejions	SuperVisor
22	Shahriar Esmaeili	February 2016		Numerical Solution of MHD Equations for Solar Coronal Loops Oscillation	SuperVisor
21	Abbas Rabounik	February 2016		Prediction of the Solar Flares by Using Support Vector Machine	SuperVisor
20	Maryam Gholamishiri	February 2014		Magnetic ?elds and spectral struc- tures of solar mini-active regions	SuperVisor
19	Bardia Kaki	February 2017		Investigation of relationship between param- eters of solar nanoflares and solar activity	SuperVisor
18	Mohammad Eftekhar	December 2017		Measuring the day-time seeing parameter in Zanjan	Advisor
17	Ehlam Molavi	September 2017		Simulation of solar flares time series in three dimensional magnetic vector potential	SuperVisor
16	Majede Nouri	September 2017		Application of Image Processing in Fractal Dimension of Solar Supergranular Cells	SuperVisor
15	Faranak Mohammadi	September 2017		Prediction of the Solar Flares Us- ing Magnetograms of Active Regions and Probabilistic Neural Network	SuperVisor
14	Zahra Tajik	January 2018		Extracting Parameters of Coronal Holes in EVU Images	SuperVisor
13	Neda Tavousi	January 2018		Asteroseismology Formalism Based on Mod- ified Helmholtz?s Theorem Proposed by Sobouti	SuperVisor
12	Parichehr Mohammadigouneh	January 2018		Complex Network of Sunspots	SuperVisor
11	Mina Hadizadeh	September 2018		Simulation of the small scale explosive magnetic event using magnetohydrodynamics approach	SuperVisor

10	Zahra Shokrichafi	September 2018		Relation between small scale eruption in the solar atmosphere	SuperVisor
9	Zahra Ramezanpour	September 2018		Empirical omori and Gutenberg Richter laws for solar flares	SuperVisor
8	Javad Ganjali	January 2019		Oscillations and weak damping of the solar coronal loops	SuperVisor
7	Mahdiyeh Makoei	January 2019		Complex network of solar active regions in the presence of the magnetic field	SuperVisor
6	Pardis Ahmadi	September 2019		Measuring the day-time seeing parameter using the DIMM technique	SuperVisor
5	Mehrafrooz Goodarzi	September 2019		Complex Network of Solar Coronal Index	SuperVisor
4	Maryam Torki	September 2019		Star Formation History in Andromeda Galaxy	SuperVisor
3	Nazanin Kahalipour	September 2019		The prediction of flares associated with coronal mass ejection using machine learning and Zernike momemts	SuperVisor
2	Meysam Norouzi	September 2019		Rotation curve of galaxies with MOND and dark matter halo profile	SuperVisor
1	Mohammad Ali Moradhaseli	September 2019		Statistics of Magnetic Features in non-flaring Active Regions	SuperVisor