



## Shahram Abbassi

Associated Prof., School of science,  
Department of Physics, Ferdowsi University  
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&  
Resident Researcher  
School of astronomy, IPM, Tehran

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**Gender:**

*Male*

**Date of birth (D/M/Y)**

*24/3/1976*

**Nationality:**

*Iranian*

### Research:

Interests in theoretical and computational astrophysics, including:

- Formation of Stars
- Dynamics and evolution of Accretion discs
- Stellar Oscillations
- Astrophysics and Astro-seismology of compact object

## Education:

**Ph.D. Physics:** (2001– Jan 2005) Ferdowsi University -Mashad- Iran

“Equilibria of a self-gravitating rotating disk around a magnetized compact object” (supervisor: J. Ghanbari)

**"Oscillation of magnetic stars: magneto-acoustic modes of roAp stars"**(Supervisor Michel Rieutord (OMP, Toulouse))

**M.S. Physics:** (1999-2001) Institute of Advance Studies in Basic Sciences (IASBS) -Iran

“A Study of g-mode oscillation of the sun” (supervisor: Prof. Y. Sobuti)

**B.S. Physics:** (1995-1999) Ferdowsi University of Mashhad- Mashhad - Iran

## Working Experiences:

1-Assistant Prof in Damghan University, School of Physics: (Jan2005- September 2012)

2- Assistant Prof. Ferdowsi University of Mashhad (September 2012- May2015)

3- Associated Prof. Ferdowsi University of Mashhad (May 2015- Now)

4- Resident researcher in School of Astronomy, IPM, Tehran, (October 2008- Now)  
[www.astro.ipm.ir](http://www.astro.ipm.ir)

5- Regular associate member of International Center of Theoretical Physics (ICTP), Trieste, Italy since January 2015

6- Board member of Astronomy society of Iran since Jan 2007

7- Leader of Iranian team in International Olympiad of Astronomy and Astrophysics IOAA2012 Rio, Brezil, IOAA2013 Volos, Greece and IOAA 2014 Romania

8- Awarded by **Iran Science Elite Federation** (one of the 100 scientists) 2015

9- Awarded by **Iran Science Elite Federation** (one of the 100 scientists) 2016

## Teaching Experiences:

**B.S.**    **Introductory Physics, Analytical Mechanics, Electromagnetism, Introductory Astronomy, Quantum Physics, Introductory Astrophysics, Space Science, Thermodynamics ,...**

**MsC:** **Advance Astrophysics, Special topics in astrophysics, Astrophysical fluid dynamics**

**PhD:** **Advanced stellar evolution, Special topics in astrophysical fluid dynamics**

## Conference Proceedings:

- **"The effect of Self-gravity on Equilibrium of Accretion disks"**, Abbassi S., Ghanbari J., 6<sup>th</sup> Research Meeting on Astronomy in Iran, (30-31 January 2002)
- **"Role of Multipolar magnetic Field on r-modes Instability in the ocean of magnetic neutron stars"**, Abbassi S., Rezanian V., 7<sup>th</sup> Research Meeting on Astronomy in Iran, (30-31 January 2003)
- **"The Oscillation of Magnetic Stars: Magneto-acoustic modes of roAp stars"** Abbassi S., Rieutord M., 9<sup>th</sup> Research Meeting on Astronomy in Iran, (January 2005)
- **" Evolutionary Solution for Beta viscous self-gravitating disks "** Abbassi S., Ghanbari J., Salehi F., 10<sup>th</sup> Research Meeting on Astronomy in Iran, (January 2006)
- **" Dynamical Behaviour of Magneto-acoustic modes in roAp stars"** Abbassi S., Rieutord M., 11<sup>th</sup> Research Meeting on Astronomy in Iran, (January 2007)
- **"The effect of thermal conduction on the ADAF with toroidal magnetic Field"** Abbassi S., Ghanbari J., Najjar S., 11<sup>th</sup> Research Meeting on Astronomy in Iran, (January 2008)
- **Equilibria of a Self-Gravitating Rotating Disk Around a Magnetized Compact Objects**, Ghanbari J., Abbassi S., JENAM2001, Munchen, Germany(9-15 September 2001)
- **Role of self-gravity on the dynamical structure of Accretion disk**, Abbassi s., AUASS, Amman, Jordan( 19-23 August 2002)
- **Nato-ASI summer school on electromagnetic spectrum of Neutron Star, Marmarine Beach, Turkey, June 2004**

- **Annual Iranian Astronomy Conference, Institute for Advanced Studies in Basic Sciences, Iran (2004) Speaker Title: *"The Oscillation of Magnetic Stars: The Magneto-Acoustic Modes of roAp Stars"***
- **The Second Workshop in Astrophysics of Neutron Stars, 30th June-4th July 2008, Istanbul, Turkey, Poster *"KHZ QPO Oscillations and Resonant Shear Alfven Waves in Neutron star Magnetosphere: The Dipolar Field Configuration"***
- **East Asia Young Astronomical Meeting, 25th July-1st August 2008, Jiayuguan, China, Speaker *"Thermal Conduction in a Magnetized Hot accretion Flow"***
- **The 10th Asian-Pacific IAU meeting, 3-6th August 2008, Kunming, China, Speaker *"Beta Viscose Prescription in a Self-Gravitating Disk"***
- **Accretion and Ejection: a global view, 22-26 June 2009, COMO, Italy “the role of thermal conduction in a viscose-resistive magnetized ADAF”**
- **Self-gravity in a ADAFs with toroidal magnetic field, 3th Iranian conference in Astronomy & cosmology, Ahvaz, Dec. 2009**
- **Black hole accretion disks: Toward a new paradigm, International conference on astronomy, May 2010, Maraghe, Iran**
- **R-mode-Alfven wave coupling in a magnetic compact stars, Shahram Abbassi, Michel Rieutord, Iranian Astronomical meeting, IASBS, Zanjan, 2010**
- **The influence of the wind in a thin self-gravitating disk, Shahram Abbassi, Mahdi Atashi, The physics of accreting binaries, June 2010, Kyoto, Japan**
- **The effect of planet and disk properties on the induced gap in protoplanetary disks, S. Abbassi, L. Sadeghi Ardestani, May 2012, presented in one they meetin entitle "The Evolution of Protoplanetary Disks and their Coupling to Central Stars, Nordita, Sweden**
- **Self-gravitational collapse of polytropic mass-losing gaseous discs: effects of outer boundary condition dictated by parent cloud, Erfan Nourbakhsh, Mohsen Shadmehri, Shahram Abbassi, Feeding Compact Objects: Accretion on All Scales, Proceedings of the International Astronomical Union, IAU, China Symposium, Volume 290, pp. 285-286**
- **Black-hole accretion disks: towards a new paradigm, Invited speaker, Iranian national cosmology meeting, 2014, Sharif University**
- **Inflow-outflow solutions in ADAFs: importance of global magnetic field, colloquium talk, Padova university, September 2015**

- **Astronomy in Iran and middle east in Islamic golden age, colloquium talk, Beijin Planetarium, spring 2014**
- **Inflow-outflow solution of self-gravitating disks: colloquium talk, Department of astronomy, Xiamen university, spring 2014**

### **Refereed paper & Prospects:**

- 1-Equilibria of a Self-Gravitating, Rotating Disk Around a Magnetized Compact object, J. Ghanbari, **S. Abbassi**, (2004) **MNRAS**, 350, 1437-1444
- 2- Role of Multipolar magnetic fields on R-modes Instabilities in Neutron Stars, **S. Abbassi**, V. Rezanian, 25th General Assembly Meeting of IAU, Joint Discussion July 2003, Sydney, Australia
- 3- Self-similar Beta Viscous collapse of a Self-gravitating Polytropic gas Disk, , **S.Abbassi**, J.Ghanbari, F. Salehi, 2006, **A&A**, 460, 357-363
- 4- Beta Viscouse Prescription in the Standard Self-Gravitating disk, J. Ghanbari, **S. Abbassi**, Triggered Star Formation In a Turbulent ISM, IAU, Symposiom No 237, held 14-18 August 2006, Prague, Czech Repoublic
- 5- Self-Similar Solutions of Viscose-Resistive ADAFs with poloidal Magnetic Field, J. Ghanbari, F. Salehi, **S. Abbassi**, **MNRAS**, 2007, Vol 381, P. 159
- 6- The Effect of Thermal Conduction on the ADAF with a Toroidal Magnetic Field, **S. Abbassi**, J. Ghanbar S. Najjari, 2008, **MNRAS**, Vol 388, 663-668
- 7- The Effect of Self-Gravity on the Equilibrium Structure of a Non-Rotating Thick Disk, J. Ghanbari, **S. Abbassi**, S. Ataei, Accepted for Publication to JDUBS, 2008, Vol 1, P8

- 8- Beta Viscose Prescription in the Self-gravitating disk, **S. Abbassi**, J. Ghanbari, proceeding of 10<sup>th</sup> Asian-Pacific IAU Meeting, Kunming China (2008), p93
- 9- The role of thermal conduction in magnetized viscous-resistive ADAFs J. Ghanbari, **S. Abbassi**, M. Ghasemnezhad, 2009, **MNRAS**, vol 400, 422-428
- 10- Different magnetic resistivity in a magnetized ADAFs with thermal conduction, J. ghanbari, **S. Abbassi**, Iranian journal of Physics, 2007, Vol 9, No 3, p249
- 11- Hydrodynamical wind on a magnetized ADAF with thermal conduction, **Abbassi, s.**; Ghanbari J., Ghasemnezhad M., 2010, **MNRAS**, Vol 409, P1113
- 12- Influence of the B-field in the early stage of star formation accretion disks, J. Ghanbari, **S. Abbassi**, N Jami, 2009, Iranian Journal of Physics, Vol 11, No. 1, p 1
- 13- Neural Network Prediction of solar cycle 24, A. Ajabshirzadeh, N., Masoumzadeh, **S. Abbassi**, **Research in Astronomy & Astrophysics** **2011**, 11, 491
- 14- Vertically self-gravitating ADAFs in the presence of toroidal magnetic field, A. Mosallanejad, **S. Abbassi**, M. Shadmehri, J. Ghanbari, Astrophysics and Space Sciences, Volume 337, Issue 2, pp.703-710
- 15- A r-mode in a magnetic rotating spherical layer: \ application to neutron stars., **S. Abbassi**, M. Rireutord, V. Rezaia, MNRAS, 2012, Volume 419, Issue 4, pp. 2893-2899
- 16-Vertically Thickness of a Magnetized Advection Dominated Accretion Flow, **S. Abbassi**, A. Mosallanejad, J. Theor. Phys., Vol 1, 2012, 29-36
- 17- Self-similar structure of a hot magnetized flow with thermal conduction, M. Ghasemnezhad, M. Khajavi, **S. Abbassi**, **Astrophysical Journal**, 2012, Vol. 750, 57

18- Structure of ADAFs in a general large-scale B-Field: the role of wind and thermal conduction, **S. Abbassi**, A. Mosallanezhad, **Research in Astronomy and Astrophysics, (RAA)**, 2012, vol. 12, p. 1625,

19- Viscous-Resistive ADAF with a general Large-Scale Magnetic Field, A. Mosallanezhad, **S. Abbassi**, **Astrophysics & space sciences**, 2012, vol 341, p.375

20- Hydrodynamical wind on magnetized Accretion Flows with Convection, Abbassi, s., Mosallanezhad, **Research in Astronomy and Astrophysics(RAA)**, 2013, Vol. 13, P. 87

21- Viscous Accretion of a Polytropic Self-gravitating Disk in the Presence of Wind, S. Abbassi, E. Nourbakhsh, M. shadmehri, **Astrophysical Journal**, Volume 765, Issue 2, article id. 96, 14 pp. (2013)

22- Radiation Spectrum of a magnetized Supercritical Accretion Disc with Thermal Conduction: M. Ghasemnezhad, M. Khajavi, S. Abbassi, **AP&SS**, 2013, Volume 346, Issue 2, pp.341-349

23- Structure of advection-dominated accretion discs with outflows: the role of toroidal magnetic fields, Mosallanezhad, A.; Abbassi, S.; Beiranvand, N., **MNRAS**, 2014, vol 437, 3112

24- The effect of toroidal magnetic field on the thickness of a viscous-resistive hot accreting flow, Samadi, M.; Abbassi, S.; Khajavi, M., **MNRAS**, 2014, vol 437, 3124

25- Numerical Simulation of Hall Effect in Magnetized Accretion Discs with Pluto Code, M. Nakhaei, G. Safaei and S. Abbassi, **RAA**, 2014, vol 14, No 1, 93-103

26- Dynamics of clumps embedded in a hot accretion flow with toroidal magnetic field, Khajenabi, F.; Rahmani, M.; Abbassi, S., 2014, **MNRAS**, Volume 439, Issue 3, p.2468-2473

27- Jeans instability in modified gravity, Roshan M., Abbassi S., **Physical Rev. D**, 90, 044010 (2014)

28- on the stability of a galactic disk in modified gravity, Roshan M.,





- 38- On the Gravitational Stability of the Maclaurin Disk, Roshan M., Abbassi S., Khosroshahi H. G., APJ, Volume 832, Issue 2, article id. 201, 12 pp. (2016)
- 39- Exact analytical solutions for ADAFs, Habibi A., Abbassi S., Shadmehri M., MNRAS, Volume 464, Issue 4, p.5028-5032
- 40- Gravitational instability of filamentary molecular clouds, including ambipolar diffusion, Hosseinirad M.; Naficy K.; Abbassi S.; Roshan M.; MNRAS, Volume 465, Issue 2, p.1645-1653
- 41- Post-Newtonian Jeans Analysis, Nazari E.; Kazemi A.; Roshan M.; Abbassi S.; APJ, Volume 839, Issue 2, article id. 75, 14 pp. (2017)
- 42- How does an asymmetric magnetic field change the vertical structure of a hot accretion flow? Samadi M., Abbassi S., Lovelace R., accepted for publication in MNRAS
- 43- The influence of large scale magnetic field in the structure of supercritical accretion flow with outflow, Ghasemnezhad M., Abbassi S., accepted for publication in MNRAS

### **Msc Thesis supervised:**

- 1- Kazem Faghei 2004 Ferdowsi University Mashhad**
- 2- Zahra Sheikh-bahaei 2005 Ferdowsi Mashhad**
- 3- Mitra Parsa 2006 Birjand University**
- 4- Sare Ataei 2007 Ferdowsi university Mashhad**
- 5- Arezo Tajmohamadi 2007 Ferdowsi University**
- 6- Maryam Ghasemnezhad 2008 Ferdowsi university Mashhad**
- 7- Vafa Omidvar 2009 Ferdowsi University Mashhad**
- 8- Amin Mosala-nezhad 2010 Damghan University**
- 9- Monir Abedzeidi 2010 Damghan University**
- 10-Ghasem Safaei 2012 Damghan university**
- 11-Mohammad Nakhaei 2012 Damghan university**
- 12- Tahere Kashfi, 2016, Ferdowsi university of Mashhad**

**PHD thesis supervised:**

- 1- Maryam ghasemnezhad, FUM, Jan 2013
- 2- Maryam Samadi , FUM, Jan 2014
- 3- Fateme-zahra Zeratgari, FUM, summer 2016
- 4- Marzieh Peyravi, FUM, Spring 2017

**Flowship and Visiting program:**

- 1- Observatory Midi-Pyrenes August-september 2009
- 2- Observatory Midi-Pyrenes August-september 2011
- 3- Nordita institute fot theoretical astrophysics, Stokholm, Jun 2012
- 4- Department of physics, Chalmers University, Gotonburg, Jun 2012
- 5- Shanghai observatory, a visiting fellowship from china academy of sciences CAS, Jan2014- Jun 2014
- 6- Regular associate member of ICTP since Jan 2015
- 7- Visiting Hida Observatory, Kyoto, Japan, January 2016
- 8- Visiting Department of Astronomy, Cornell University, April-March 2017
- 9- Visiting Harvard-Smithsonian center for astrophysics, March 2017