

Hossein Mos'hafi

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🌐 [/cosmodata](#)

🌐 Gravitea.ir

in [/hossein-moshafi](#)

✔ Current Appointment

- » PostDoctoral Researcher September 2020–Present
 - > School of Astronomy, Institute for Research in Fundamental Sciences (IPM) Tehran, Iran
- » Non Resident Researcher November 2019–September 2020
 - > School of Physics, Institute for Research in Fundamental Sciences (IPM) Tehran, Iran
- » Researcher October 2017–September 2020
 - > Ibn-Sina Laboratory, Department of Physics, Shahid Beheshti University Tehran, Iran

🎓 Education

- » Ph.D. in Physics, Cosmology Sep 2011 –May 2017
 - > Institute for Advanced Studies in Basic Sciences (IASBS) Zanjan, Iran
- » M.Sc. in Physics, Cosmology 2008 – 2011
 - > Shahid Beheshti University (SBU) Tehran, Iran
- » B.Sc. in Physics 2004 – 2008
 - > Sharif University of Technology (SUT) Tehran, Iran

📅 Current Projects

- » "Standard Clocks in the light of new observations" in collaboration with Mohammad Hossein Namjoo (IPM)
- » "CMB lensing and cosmic tension in Λ CDM model" in collaboration with Shant Baghran (SUT), Nima Khosravi (SBU)
- » "Structure formation in featured oscillatory inflationary models by using large scale simulations" in collaboration with Mohammad Hossein Namjoo (IPM)

📄 Publications

- » B. Mostaghel, **H. Moshafi**, S. Baghran, N. Khosravi, "CMB lensing in Λ CDM", in preparation
- » Z. Safari, B. Malekolkalami, **H. Moshafi**, "Cosmological constraints on dark matter particle production rate", arXiv:2004.02446 [gr-qc]
- » B. Mostaghel, **H. Moshafi**, S.M.S. Movahed, "The Integrated Sachs-Wolfe Effect in the Bulk-Viscous Dark Energy model", arXiv:1810.04856[astro-ph.CO], Monthly Notices of the Royal Astronomical Society, Volume 481, Issue 2, 1 December 2018.
- » B. Mostaghel, **H. Moshafi**, S.M.S. Movahed, "Non-minimal Derivative Coupling Scalar Field as a Bulk-Viscous Dark Energy", arXiv:1611.08196 [astro-ph.CO], Eur. Phys. J. C 77, no. 8, 541 (2017)
- » N. Mirzatanuy, S. Khosravi, S. Baghran, & **H. Moshafi**, "Simultaneous effect of Modified Gravity and Primordial Non-Gaussianity in Large Scale Structure Observations"

- » **H. Moshafi**, **M. Bahraminasr**, "A Guide for CosmoMC Installation and Running", arXiv:1808.05080 [astro-ph.IM]
- » A. S. Ebrahimi, **H. Moshafi**, "Are Cold Dynamical Dark Energy Models Distinguishable in the Light of the Data?", arXiv:1802.05087 [astro-ph.CO]

Conference Papers

- » B. Mostaghel, **H. Moshafi**, S.M.S. Movahed, "Viscous Dark Energy: A Proposal to Resolve the Tension Between Planck and Redshift Space Distortion", National Physics Conference, Iran, Summer 2017.
- » B. Mostaghel, **H. Moshafi**, S.M.S. Movahed, "Footprints of Interaction of Viscous Dark Energy and Dark Matter on the Expansion History of the Universe", National Conference of Gravitation and Cosmology, Winter 2016, SBU, Iran.
- » **H. Moshafi**, A. Vafaei Sadr, S.M.S. Movahed, H. Haghi, "Two-point correlation function of Peaks in Planck data: Hemispherical Asymmetry", National Conference of Gravitation and Cosmology, Winter 2015, SUT, Iran.
- » **H. Moshafi**, S.M.S. Movahed, M. Zarei, "Search for local kink in the CMB power spectrum", poster presentation in Summer School on Cosmology at ICTP, Summer 2012, Trieste, Italy.
- » **H. Moshafi**, M. Zarei, & M. Sadegh Movahed, "Local features in CMB power spectrum", National Conference of Gravitation and Cosmology, Winter 2013, Iran.
- » M. Sadegh Movahed, B. Javanmardi, & **H. Moshafi**, "Cosmic string detection using peak - peak correlation function in CMB map", National Physics Conference, Iran, Summer 2011.
- » M. Sadegh Movahed, B. Javanmardi, & **H. Moshafi**, "Two-point correlation function of peaks in the cosmic microwave background radiation", 15th meeting on Research Astronomy, Zanjan, Iran, 2011.
- » **H. Moshafi**, M. Sadegh Movahed, & A. Sojasi, "Statistical Properties of Deviation of Inflaton from Quantum Thermal Vacuum", National Conference of Gravitation and Cosmology, Winter 2011, Iran.
- » **H. Moshafi** & M. Sadegh Movahed, "Footprint of Power-law Quintessence model on the Last Scattering Surface fluctuations, Large Scale Structure formation and evolution of the Universe", National Physics Conference, Iran, Summer 2010.
- » **H. Moshafi** & M. Sadegh Movahed, "The Power Spectrum of CMB Radiation in the Power Law Model of Dark Energy", National Conference of Gravitation and Cosmology, Winter 2010, Iran.

Research Interests

- ➔ Cosmological Structure Formation
- ➔ Non-Gaussian effects on the CMB and LSS
- ➔ Dark Energy & Modified Gravity
- ➔ Inflation and Early Universe
- ➔ Reionization & 21cm fluctuations

➔ Data Modeling, Data Science, Machine Learning

📅 Academic Experiences

➔ Student Supervision

- » Advisor Feb. 2015 – Nov. 2018
 - > Ph.D. Student Shahid Beheshti University
- » Behrang Mostaghel, "Correspondence Between Dynamical Dark Energy and Bulk Viscous Cosmology",
Primary supervisor: Dr. S.M.S. Movahed.

- » Advisor Mar. 2012– Mar. 2014
 - > M.Sc. Student University of Zanjan
- » Fatemeh Fehrest, "CMB power spectrum and parameter estimation using artificial neural networks",
Primary supervisor: Dr. Mehdi Bazarghan

➔ Research Experience

- » Research Assistant:
 - > Institute for Advanced Studies in Basic Sciences, Under the supervision of Dr. Haghi 2011– 2014
 - > Shahid Beheshti University, Under the supervision of Dr. Movahed 2008– 2011

➔ Teaching Experience

- » Instructor
 - > "Advanced Cosmology" for graduate students, Amirkabir University of Technology Winter 2020
 - > "Astrophysics" for graduate students, Sufi University Winter 2014
 - > "Galactic Dynamics", National Astronomy Olympiad Team 2012– 2013
- » Teaching Assistant
 - > "Astrophysics II" , for graduate students , Institute for Advanced Studies in Basic Sciences 2012
 - > "Thermodynamics", for graduate students Shahid Beheshti University 2009
 - > "Fundamentals of Physics", Shahid Beheshti University 2010

➔ Scientific Administrative Experience

- » Local Organization
 - > 17th Meeting on Research in Astronomy, Institute for Advanced Studies in Basic Sciences Spring 2013
 - > 16th Meeting on Research in Astronomy, Institute for Advanced Studies in Basic Sciences Spring 2012
 - > 17th Physics students meeting, Physics Society of Iran Summer 2009
- » Scientific Organization
 - > National Astronomy and Astrophysics Olympiad, National Astronomy Olympiad Team 2009 – 2011
 - > 18th Annual of high school students conference of Physics Summer 2010
- » Editor in Chief
 - > Takaneh Magazine (Scientific Magazine of Physics at Sharif University of Technology) 2006 – 2007

Computer Skills

- ➔ Operating System
 - » GNU/Linux, MacOS, Windows
- ➔ Programming Language
 - » Python2&3, Fortran 90, C/C++, SQL, HTML
- ➔ Tools
 - » Bash Scripting, Gnu Core Utilities, Git
- ➔ Libraries & APIs
 - » Numpy, SciPy, Matplotlib, Pandas, AstroPy, OpenMP, GetDist
- ➔ Scientific Packages
 - » CosmoMC, CAMB, GADGET-2, Enzo, CLASS, HEALPix, GLESP, Zeno
- ➔ Software
 - » Wolfram Mathematica, Maple, MATLAB/Octave, Gnuplot
- ➔ General
 - » \LaTeX , LibreOffice, iWork, MS office, Adobe Photoshop, Adobe InDesign, WordPress
- ➔ Repositories
 - » GitHub Repository :  [/cosmodata](#)

Other Skills

- ➔ Data Analysis
 - » General Analytics, Reporting, Predictive Modeling, Machine Learning, Visualization, Bayesian Model Diagnostics, Bayesian Model Selection, MCMC

Languages

- ➔ Persian > Native
- ➔ English > Fluent

Selected Workshops & Conferences

- ➔ Workshop
 - » Lecturer
 - > Observational Data Analysis with "CosmoMC", University of Kurdistan, Winter 2020 IRAN
 - > Cosmological Data Anslysi with "CosmoMC", University of Neyshabur, Fall 2019 IRAN
 - > Introduction to Cosmological Codes, Shahid Beheshti University, Spring 2018 IRAN
 - > Introduction to CosmoMC, Sharif University of Technology, Winter 2018 IRAN
 - > National conference of Gravitation and Cosmology (NGC), Sharif University of Technology, 2015 IRAN

» Attendance

- > Origin of Cosmic Structures: Numerical and Theoretical Approach, IHP, 2013 FRANCE
- > Workshop on Large Scale Structure, ICTP, 2012 ITALY
- > 4th Workshop on High Performance and Grid Computing (HPC4), IPM, 2012 IRAN

➔ School

» Attendance

- > "Tehran meeting on Modified Gravity", IPM, 2016 IRAN
- > Summer School on Cosmology", ICTP, 2016 ITALY
- > School of "Advanced Cosmology", Shahid Beheshti University, 2013 IRAN
- > School of "N-body Gravitational Dynamical Systems", IHP, 2013 FRANCE
- > 20th Spring School of Physics, IPM, 2013 IRAN
- > Summer School on Cosmology, ICTP, 2013 ITALY

➔ Conference

» Attendance

- > National conference of Gravitation and Cosmology (NGC), Shahid Beheshti University, 2013 IRAN
- > National conference of Gravitation and Cosmology (NGC), Tehran University, 2013 IRAN
- > National conference of Gravitation and Cosmology (NGC), Sharif University of Technology, 2011 IRAN
- > National conference of Physics, Bu Ali Sina University, 2010 IRAN
- > National conference of Gravitation and Cosmology (NGC), Shahid Beheshti University, 2010 IRAN

👤 Personal Info

➔ Sex > Male

➔ Date of Birth > 1986-07-15

➔ Nationality > Iranian

📌 References

» Dr. Seyed Mohammad Sadegh Movahed: ✉ m.s.movahed@ipm.ir
> Associate Professor of Physics, Dept. of Physics Shahid Beheshti University

» Dr. Shant Baghram: ✉ baghram@sharif.edu
> Assistant Professor of Physics, Dept. of Physics Sharif University of Technology

» Dr. Nima Khosravi: ✉ n-khosravi@sbu.ac.ir
> Assistant Professor of Physics, Dept. of Physics Shahid Beheshti University