FARBOD HASSANI

Institute of Theoretical Astrophysics, University of Oslo, [redacted], Oslo, Norway
☎ +[redacted] ✉[redacted]
www.mn.uio.no/farbod hassani github.com/FarbodHassani, ORCID

EDUCATION

- **Researcher in Cosmology** November 2024 -
University of Oslo, Oslo, Norway.
- **Postdoctoral fellow in Cosmology** September 2020 - November 2024
University of Oslo, Oslo, Norway.
- **PhD in Cosmology** September 2016 -September 2020
University of Geneva, Geneva, Switzerland.
Supervisor: Martin Kunz
Thesis title: Characterizing the non-linear evolution of dark energy models.
Thesis grade: Excellent (Tres bien avec félicitations)
- **Master in physics (Cosmology)** October 2014 - August 2016
Sharif university of Technology, Tehran, Iran.
Thesis title: CMB Lensing and Large Scale Structure bias as a probe of beyond LCDM Cosmology.
Thesis grade: 20.00/20.00
- **Bachelor of Science in Physics** September 2009 - July 2013
Sharif university of Technology, Physics department, Tehran, Iran.
- **Bachelor of Science in pure Mathematics** February 2012 - July 2014
Sharif university of Technology, Math department, Tehran, Iran.

ACADEMIC AND RESEARCH INTERESTS

- Cosmological N-body simulation.
- Cosmic acceleration, dark energy, modified gravity and cosmological constant problem.
- Large-scale structure, precision cosmology.

PUBLICATIONS

The total number of publications: **28** (**10** as first author, **8** in alphabetical order, **6** as supervisor and **4** Euclid paper where **3** were as a lead author).
Updated list of my publications, metrics, and citations available at: ADS Database

SEMINARS, TALKS AND POSTER PRESENTATIONS

- (Invited) NEVO-illuminating the dark cosmos, The National Observatory, Brazil August 2024
- MG-evolution: implementation of parametrised gravity, gevolution meeting, University of Zurich June 2024
- (Invited) NEVO-illuminating the dark cosmos, University of the Western Cape, South Africa June 2024
- (Invited) Illuminating the dark cosmos, University of Cape Town, South Africa May 2024
- Dark matter and Dark energy, University of Oslo, Astronomy Olympiad students March 2024
- (Invited) NEVO-illuminating the dark cosmos, University of Oslo colloquium Feb 2024
- (Invited) (a)symmetron Cosmology, University of Zurich, Switzerland June 2023
- (Invited) (a)symmetron Cosmology, University of Geneva, Switzerland May 2023
- (Invited) The importance of non-linearities in dark energy models, University of Cape Town Dec 2022
- (Invited) Characterizing the non-linear evolution of DE models, Perimeter Institute, Canada July 2022
- (Invited) Instabilities appearing in effective field theories, McGill University, Canada May 2022
- (Invited) Characterizing the non-linear evolution of modified gravity models, Prague, Czech October 2021
- (Invited) Non-linear evolution of dark energy and modified gravity models, Prague, Czech October 2021
- (Invited) A new non-linear instability for scalar fields, Prague, Czech October 2021
- (Invited) k-evolution: an N-body code for clustering DE, The PASC21, Geneva, Switzerland July 2021

- Clustering dark energy imprints, Relativistic Aspects of LSS, University of Zurich May 2021
- (Invited) expert in Cosmology Talks mini-workshop on modified gravity in cosmology May 2021
- (Invited) Characterizing the non-linear evolution of dark energy models, Sharif University, Iran Feb 2021
- (Invited) Characterizing the non-linear evolution of dark energy models, Sharif University, Iran Feb 2021
- (Invited) Characterizing the evolution of dark energy models , University of Oslo, Norway Nov 2020
- An Instability in clustering dark energy, gevolution users & developers meeting (online) May 2020
- (Invited) k-evolution, an N-body code for clustering DE, Institute for Advanced Studies, Zanjan, Iran Jan 2020
- (Invited) The importance of non-linearities in dark energy models, Sharif University, Iran Jan 2020
- (Invited) k-evolution, an N-body code for clustering dark energy, Shahid Beheshti University, Iran Jan 2020
- k-evolution, an N-body code for clustering DE, Euclid Cosmological Simulations meeting, Barcelona Nov 2019
- The importance of non-linearities in dark energy models, Cosmo19, RWTH, Aachen, Germany September 2019
- The importance of non-linearities in DE models, Swiss Cosmology Days, University of Zurich July 2019
- k-evolution: toward N-body simulation of the EFT of DE, CosmoGold, IAP, Paris (Poster) June 2019
- The importance of non-linearities in dark energy models, Relativity meeting, University of Zurich June 2019
- k-evolution and the trace of a new instability, University of Oslo, Norway May 2019
- (Invited) On the orbits of objects in discrete space-time, Sharif University, Iran January 2019
- (Invited) k-essence instability and the story of a serial killer, Sharif University, Iran January 2019
- (Invited) The story of a serial killer, Shahid Beheshti, Iran January 2019
- Non-linear systems in Cosmology, University of Geneva, Switzerland November 2018
- (Invited) k-evolution and the importance of non-linearities, KASI, South Korea September 2018
- k-evolution, COSMO18, Daejeon, South Korea (Poster presentation) September 2018
- k-essence implementation in gevolution, gevolution meeting ,Geneva University, Switzerland January 2018
- gevolution, a relativitisc N-body code, Sharif University, Iran August 2018
- CMB Lensing and Large Scale Structure Bias as a probe of beyond LCDM, Sharif Uni, Iran August 2016
- (Invited) Lensing as a Probe of Early Universe, Max Planck Institute, Munich, Germany February 2016
- Lensing as a Probe of Early Universe, Sharif University, Iran December 2015
- Planck 2015 results. XV. Gravitational lensing, Sharif University, Iran February 2015
- Sagnac effect in general relativity, Institute for Research in Fundamental Sciences, Iran December 2013
- CMB and galaxy lensing, Sharif University of Technology, Tehran, Iran March 2013

RESEARCH VISITS

- University of Geneva, Geneva, Switzerland July 2024
- University of Cape Town and University of the Wester Cape, Cape Town, South Africa April-July 2024
- University of Zurich, Zurich, Switzerland May-June 2023
- University of Geneva, Geneva, Switzerland May-June 2023
- University of Cape Town, Cape Town, South Africa Dec-Jan 2022
- Perimeter Institute, Waterloo, Canada, visiting Niayesh Afshordi July- August 2022
- McGill University, Montreal, Canada, visiting Robert Brandenburger March- September 2022
- CEICO, Prague, Czech, visiting Alex Vikman, Sabir Ramazanov and Ignacy Sawicki October-November 2021
- University of Geneva, Geneva, Switzerland, visiting Jean-Pierre Eckmann and Martin Kunz Jan-Feb 2021
- University of Oslo, Oslo, Norway, visiting David Mota May-June 2019
- KASI, Daejeon, South Korea, visiting Arman Shafieloo September-October 2018

HONORS

- Researcher Young Talent Grant from Research Council of Norway (8 million NOK $\approx$ 800k USD) 2023
- One-year Postdoc Extension from Research Council of Norway (1.244 million NOK $\approx$ 124k USD) 2022
- Researcher Mobility Grant, one-year travel grant from Research Council of Norway (268k NOK $\approx$ 26k USD) 2022
- Candidate for the best PhD thesis at University of Geneva 2020
- PhD fellowship (70k USD/year + 6k USD/year travel allowance) at University of Geneva 2016-2020
- Ranked 1st (in top 5%) among M.Sc. students of physics at Sharif university 2014-2016
- Graduated B.Sc. with honor achieved to enroll in the M.Sc. level without entrance examination 2014
- Be in top 5% among B.Sc. students of physics and mathematics department 2009- 2015

POSTDOCS, PHD AND MASTER STUDENTS I (CO-)SUPERVISE(D)

- Abdolali Banihashemi (2024-2026 Postdoc, University of Oslo)
- Nanna Bryne (2023- 2024 - Master student, University of Oslo, supervisors: David Mota, Julian Adamek and myself)
- Jørgen Armann Glenndal (2023- 2024 - Master student, University of Oslo, supervisor: myself)
- Johan Mylius Kroken (2023- 2024 - Master student, University of Oslo, supervisors: David Mota, Julian Adamek, Francisco Antonio Villaescusa Navarro and myself)
- María Rodríguez Domínguez (2023- 2024 - Bachelor student, University of Salamanca, supervisors: myself and Jose Beltran Jimenez)
- Øyvind Christiansen (2020- 2024 - PhD student, University of Oslo, supervisors: myself and David Mota)
- Mohadese Khoschtinat (2022-2026 - PhD student, Sharif University, main supervisor: Shant Baghram)
- Ahmadreza Nourizonoz (2022-2026 - PhD student, University of Geneva, main supervisor: Martin Kunz)
- Marius Bjerke Børvind (2021-2023 - master student, University of Oslo, supervisor: myself)
- Ahmadreza Nourizonoz (2021-2022 - master student, University of Geneva, main supervisor: Martin Kunz)
- Zahra Baghkhani (2020-2022 - Master student, Sharif University, main supervisor: Shant Baghram)
- Amirmohammad Chegeni (2021-2023 - Master student, Shahid Beheshti University, main supervisor: Nima Khosravi)
- Saba Etezadrazavi, Mohammad Hadi Sotoudeh, Erfan Abbasgholinejad (2021-2022 - bachelor students, Sharif University, main supervisors: Shant Baghram and Sadegh Raeisi)

SCIENTIFIC AND PROFESSIONAL DUTIES

- Full member of the Euclid Consortium, simulation working group, non-standard models (2018-)
- Junior member of International Astronomical Union (IAU) (2021-)
- Member of hiring committee at Institute of Theoretical Astrophysics, University of Oslo, Norway (2022)
- Local organizer of annual Euclid Consortium Meeting, approx. 400 participants. Norway (2022)
- Responsible for cosmology journal clubs and seminars at Institute of Theoretical Astrophysics, UIO (2020-2023)
- Organizer of Olympiad on Astronomy and Astrophysics in Norway (2021-)
- Referee for Physical Review Letter and PRD journals
- Referee for MNRAS (Monthly Notices of the Royal Astronomical Society) journal
- Referee for JCAP (Journal of Cosmology and Astroparticle Physics) journal

TEACHING EXPERIENCE

• TA for Quantum Mechanics I (Prof. Martin Kunz, University of Geneva)	Spring 2019
• TA for Thermodynamics (Prof. Eugene Sukhorukov, University of Geneva)	Autumn 2018
• TA for Quantum Mechanics I (Prof. Martin Kunz, University of Geneva)	Spring 2018
• TA for Classical Mechanics I (Prof. Peter Wittwer, University of Geneva)	Autumn 2017
• TA for Mathematical methods II (Prof. Antonio Riotto, University of Geneva)	Spring 2017
• TA for Thermodynamics (Prof. Eugene Sukhorukov, University of Geneva)	Autumn 2016
• TA for General Relativity I (**PhD course**) (Prof. Reza Mansouri, Sharif University)	Spring 2016
• TA for Cosmology I (**PhD course**) (Prof. Sohrab Rahvar, Sharif University)	Autumn 2014
• TA for Classical mechanics II (Prof. Omid Akhavan, Sharif University)	Spring 2013
• TA for Classical mechanics I (Prof. Omid Akhavan, Sharif University)	Autumn 2012
• TA for General Physics 1 Laboratory (Prof. Mahmoud Bahmanabadi, Sharif University)	Autumn 2011

COMPUTER SKILLS

- **Programming languages:** Advanced C++, Advanced Python, Advanced Shell programming, Fortran, HTML
- **Computational software:** Mathematica, Maple, MATLAB
- **High performance and parallel computing:** MPI, OpenMP
- **Cosmological codes and packages:** k-evolution, gevolution, MG-evolution, LATfield2, hi-class, CLASS, CAMB, EFTCAMB, MGCAMB, CMBquick, GADGET-2, L-PICOLA