

Leila MIRZAGHOLI

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EDUCATION

SEP 2020	PhD in THEORETICAL PHYSICS, COSMOLOGY Max Planck Institute for Astrophysics , Garching, Germany Thesis: Aspects of Axion-SU(2) Gauge Fields During Inflation Adviser: Prof. Dr. E. KOMATSU
FEB 2016	M.Sc. in THEORETICAL PHYSICS, COSMOLOGY Elite Master Program in Theoretical and Mathematical Physics Ludwig-Maximilians University , Munich, Germany Thesis: "Mimetic Dark Matter and its Modifications" Advisers: Prof. Dr. V. MUKHANOV and Dr. ALEXANDER VIKMAN
JUNE 2011	M.Sc. in MATHEMATICS, MODULI SPACES Mathematical Research Institute, Utrecht University , Utrecht, The Netherlands Thesis: "Universal Quantum Manifolds" Adviser: Dr. L.L.H. WYLLEMAN
JUNE 2010	Bachelor of Science in PURE MATHEMATICS University Of Tehran , Tehran, Iran Thesis: "Applications of Group Theory in Theoretical Physics " Adviser: Prof. Dr. M.R. DARAFSHEH

PROFESSIONAL EXPERIENCE

2014 - 2015	Research Assistant: DATA ANALYSIS, IMAGE PROCESSING and PHOTOMETRY University Observatory Munich (USM) , Munich, Germany. Developed data analysis, and noise reduction on raw CCD images from <i>Serpens Cluster</i> . Performed photometry on different bands under supervision of Dr. Veronica Roccatagliata.
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TEACHING AND ACADEMIC SERVICES

2014 - 2016	Teaching Assistant Ludwig-Maximilians University , Munich, Germany. Held tutorials in <i>Quantum field theory in Curved Space-time</i> , <i>Cosmology</i> , <i>General Relativity</i> , (Prof. Dr. Slava Mukhanov), <i>Electrodynamics</i> , (Prof. Dr. Stefan Hoffmann) and <i>Mathematics for Physicists I, II, III</i> (Prof. Dr. Detlef Dürr).
2018 - Now	Reviewing Reviewing for the Journal of Cosmology and Astroparticle Physics (JCAP).

PUBLICATIONS

First author Publications

1. Effects of Gravitational Chern-Simons during Axion-SU(2) Inflation
L. Mirzaghali, E. Komatsu, Kaloian D. Lozanov and Yuki Watanabe
Accepted in *Journal of Cosmology and Astroparticle Physics*. DOI: [arXiv: 2003.05931](#)
2. Production and Backreaction of Fermions from Axion-SU(2) Gauge Fields during Inflation
L. Mirzaghali, A. Maleknejad and K. Lozanov
Accepted in *PHYSICAL REVIEW D*. DOI: [10.1103/PhysRevD.101.083528](#), [arXiv: 1905.09258](#)
3. Imperfect Dark Matter
L. Mirzaghali and A. Vikman
Accepted in *Journal of Cosmology and Astroparticle Physics*. DOI: [10.1088/1475-7516/2015/06/028](#), [arXiv: 1412.7136](#)

PROJECTS

Clustering of Massive Neutrinos in the Vicinity of Earth

Using the [MAGNETICUM](#) simulation to calculate the density of massive neutrinos in the vicinity of Earth.

L. Blot, C. Carbone, K. Dolag, E. Komatsu, and **L. Mirzaghali**

SKILLS

PROGRAMMING **Python, Mathematica.**
Experience with **CLASS, CMBFAST, IRAF**, and **IDL**.

SCIENTIFIC PRESENTATIONS

Talks

- MAY 2020 Chiral Gravitational Waves from Inflation. *Institute Seminar*, Max Planck Institute for Astrophysics, Germany.
- OCTOBER 2019 Gravitational Waves from the Early Universe. *IMPRS Symposium*, Max Planck Institute for Extraterrestrial Physics, Germany.
- SEPTEMBER 2019 Production and Backreaction of Fermions from Axion-SU(2) Gauge Fields. *The Non-Gaussian Universe Workshop*, University of Cambridge, UK.
- APRIL 2017 Overdensity of Cosmic Neutrinos Around Earth. *IMPRS Symposium*, Max Planck Institute for Extraterrestrial Physics, Germany.
- JUNE 2016 Imperfect Dark Matter. *Utrecht Cosmology Symposium*, Utrecht University, The Netherlands.

Posters

- DECEMBER 2019 Parity violating during inflation. *B-mode from Space*, Max Planck Institute for Astrophysics, Germany.
- SEPTEMBER 2019 Production and Backreaction of Fermions from Axion-SU(2) Gauge Fields. *COSMO19*, RWTH Aachen University, Germany.

HONOURS AND AWARDS

- 2014 - NOW Member of Elite Network of Bavaria.
- SEPTEMBER 2010 Mathematical Research Institute Scholarship, Utrecht University.
- JULY 2004 First Prize of Young Researchers, Center of Science and Astronomy, Tehran.

NON-RESEARCH ACTIVITIES

- 2019 - Now Co-organiser of the Women's Encouragement Group at Max Planck Institute for Astrophysics.
- MARCH 2018 Talk at the annual Girls Day at the Max Planck Institute for Astrophysics.
- OCTOBER 2017 Observatory tour guide at the annual Open Day at the Max Planck Institute for Astrophysics.

REFERENCES

Prof. Dr. Eiichiro Komatsu
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Dr. Alexander Vikman
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