LAYA GHODSI

layaghodsi@phas.ubc.ca ⋄ layaghodsi@gmail.com

EDUCATION

University of British Columbia, Vancouver, Canada 2021 – Present
Ph.D. in Astronomy. Supervisor: Prof. Allison Man. Overall GPA: 85/100

Sharif University of Technology, Tehran, Iran 2018 – 2020
M.Sc. in Physics. Supervisor: Prof. Shant Baghram. Overall GPA: 17.45/20

Sharif University of Technology, Tehran, Iran 2014 – 2018
B.Sc. in Physics. Supervisor: Prof. Shant Baghram. Overall GPA: 17.21/20

RESEARCH INTERESTS

Galaxy Evolution • Galaxy Clusters • Star Formation• Circumgalactic Medium • Radio Astronomy

RESEARCH EXPERIENCE

University of British Columbia, Vancouver, Canada Mar. 2024 – present
Ph.D. Thesis Project: *"Joint ALMA+JWST analysis of the circumgalactic medium of MACS1931-26"*.
Supervisor: Prof. Allison Man

University of British Columbia, Vancouver, Canada Feb. 2024 – Present
Ph.D. Thesis Project: *"Cold molecular gas in high redshift galaxy protoclusters"*.
Supervisor: Prof. Allison Man

European Southern Observatory, Garching bei Munchen, Germany Nov. 2022 – Feb. 2024
Ph.D. Thesis Project: *"Excited gas in the circumgalactic medium of the MACS1931-26 cluster"*.
Supervisors: Dr.Paola Andreani, Dr.Carlos De Breuck, Prof.Allison Man

University of British Columbia, Vancouver, Canada Jan. 2021 – Oct. 2022
Ph.D. Thesis Project: *"Star formation efficiency across galaxy environments"*, Supervisor: Prof. Allison Man

Sharif University of Technology, Tehran, Iran Sep. 2019 – Feb. 2021
M.Sc. Thesis Project: *"New probes for the spatial distribution of galaxy groups in SDSS"*.
Supervisor: Prof. Shant Baghram

Max Planck Institute for Astronomy, Heidelberg, Germany Jul. 2020 – Dec. 2020
Remote Internship Project: *"Smoothed Particle Hydrodynamic (SPH) simulation in galaxy evolution"*.
Supervisor: Dr. Karan Molaverdikhani

Sharif University of Technology, Tehran, Iran Feb. 2019 – Jun. 2019
Machine Learning Course Capstone Project: *"From the distribution of dark matter to the distribution of galaxies"*.
Supervisors: Prof. Sadegh Raeisi, Prof. Shant Baghram

Institute For Research in Fundamental Sciences, IPM, Tehran, Iran Sep. 2017 – Sep. 2018
B.Sc. Thesis Project: *"Relationship between the environment density and the age of galaxy groups"*.
Supervisor: Dr. Mojtaba Raouf. Co-Supervisor: Prof. Shant Baghram, Prof. Habib Khosroshahi

PUBLICATIONS

L. Ghodsi, A. Man, D. Donevski, R. Davé, S. Lim, C. C. Lovel, D. Narayanan, *"Star formation efficiency across galactic environments"*, MNRAS, 528, 4393.

L. Ghodsi, P. Andreani, C. De Breuck, A. Man, P. Papadopoulos, Y. Miyamoto, J. Zhou, Z. Zhang, *"Excited gas in the CircumGalactic Medium of the MACS1931-26 cluster at z=0.35"*, 10.48550/arXiv.2406.09552.

H. Hao Tse Huang, A. Man, **L. Ghodsi**, et al., *"ALMA [CI] and CO observations of PKS 0529-549"*, in prep.

M. AnsariFard, Z. Baghkhani, **L. Ghodsi**, S. Taamoli, F. Hassani, S. Baghram, *"Structure of cosmic web in non-linear regime: the nearest neighbour and spherical contact distributions"*, MNRAS, 512, 5164.

PRESENTATIONS

"Recipes to Regulate Star Formation at All Scales" conference Apr. 2024
Contributed talk, Space Telescope Science Institute (STScI), Baltimore, USA.

"A journey through galactic environments" conference Sep. 2023
Two posters, Porto Ercole, Italy.

"First structures in the Universe" workshop Sep. 2023
Contributed talk, Paris, France.

"Olympian symposium 2023: Star formation in the era of JWST" conference Jun. 2023
Poster, Paralia Katerini, Greece.

"Science with APEX" meeting Jan. 2023
Contributed talk, Ringberg, Germany.

"XXXI International Astronomical Union General Assembly (IAU GA 2022)" Aug. 2022
Contributed e-talk, Busan, South Korea.

"Canadian Astronomical Society Annual General Meeting (CASCA AGM 2022)" May. 2022
Contributed talk, University of Waterloo, Canada.

"Galaxy Clusters 2022: Challenging Our Cosmological Perspectives" Symposium Apr. 2022
Poster, Space Telescope Science Institute, Baltimore, USA.

"UBC Three Minute Thesis (3MT) competition" Mar. 2022, Feb 2024
Talk, Department of Physics and Astronomy, University of British Columbia, Vancouver, Canada.

"VanCosmos" joint cosmology meeting Dec. 2021
Talk, Department of Physics and Astronomy, Simon Fraser University, Vancouver, Canada.

HONORS AND AWARDS

ESO studentship program one year fellowship. 2022 - 2023
European Southern Observatory, Germany.

Four Year Doctoral Fellowship (4YF) 2022 - 2025
University of British Columbia, Canada.

"XXXI International Astronomical Union General Assembly" travel grant. 2022
International Astronomical Union.

"Advancing Theoretical Astrophysics" summer school travel grant. 2019
University of Amsterdam, Netherlands.

Rank 25 in the national Physics M.Sc. university entrance exam. 2018
Iran

SUCCESSFUL PROPOSALS FOR TELESCOPE TIME

JWST/MIRI, 4.31 h, PI: A. Man, Co-PI: P. Andreani, **L. Ghodsi**, "Direct detection of molecular gas reservoir in the circumgalactic medium of a brightest cluster galaxy".

ALMA, project IDs: 2021.2.00019.S and 2023.1.01154.S, PI: A. Man, "Large-scale starburst activity in the Early Universe: Locating the fuel".

Gemini/Flamingos2, 8.35 h, PI: A.Man, "Characterizing the Mpc-scale environment of a massive, radio galaxy at z=2.6".

IRAM/NOEMA, 22.8 h, PI: D. Donevski, *"Dusty galaxies as signposts for distant protocluster cores at z>3-4"*.

JCMT/SCUBA-2, 10.66 h, PI: T. Bakx, *"Dusty galaxies as signpost for distant proto-clusters at z∼3-4"*.

CFHT/MegaCam, 10 h, PI: S. Arnouts, *"DEUS : Deep Euclid U band Survey"*.

CONFERENCES, WORKSHOPS AND SCHOOLS

"6th Netherlands ALMA Science Day" Dec. 2022
ALMA regional center (Allegro), Netherlands.

"18th NRAO Synthesis Imaging Workshop" May. 2022
NRAO, Socorro, New Mexico, USA.

"Galaxy Clusters 2022: Challenging Our Cosmological Perspectives" Symposium Apr. 2022
Space Telescope Science Institute, STScI, Baltimore, USA.

"Formation and Evolution of Galaxy Clusters Across Cosmic Time" winter school Nov. 2021
Instituto de Astrofísica de Canarias, IAC, Tenerife, Spain

"WestGrid Training Modules 2021": Compute Canada Cloud Jun. 2021
Introduction to Compute Canada cloud and Docker

ALMA Proposal Planning Training Sessions Mar. - Apr. 2021
"ALMA Cycle 8 2021 Community Days and Proposal Planning Events"

"KROME BOOTCAMP 2021" astrochemistry school Feb. 2021
Online winter school on astrochemistry

"Advancing Theoretical Astrophysics" summer school Jul. 2019
University of Amsterdam, Netherlands

Young Scholars Club summer school Jun. 2013 – Sep. 2013
Young Scholars Club, Tehran, Iran
Preparation course for the national student Olympiads on Astronomy and Astrophysics.

ACADEMIC SERVICES

"ESO galaxy evolution coffee" Sep. 2023 – Oct. 2023
Co-organizer.
European Southern Observatory, Garching bei München, Germany.

"ESO artificial intelligence forum" Apr. 2023 – Oct. 2023
Co-organizer.
European Southern Observatory, Garching bei München, Germany.

"West Coast Galaxy Journal club" Jan. 2022 – Present
Co-founder and co-organizer of the joint UBC/UVic journal club on galaxies.
University of British Columbia, Vancouver, Canada.

"UBC extragalactic group meetings" Jan. 2021 – Present
Co-facilitator of the UBC extragalactic weekly group meetings.
University of British Columbia, Vancouver, Canada.

"Cosmic web formation and evolution" workshop Aug. 2020
Co-organizer.
Sharif University of Technology, Tehran, Iran.

COURSEWORK

Sharif University of Technology, Tehran, Iran 2014 – 2020
Graduate level: Introduction to Astrophysics, Advanced Cosmology, General Relativity, Applications of Machine Learning in Physics.

Undergraduate level: Introduction to Astronomy, Introduction to Cosmology, Special Relativity, Analytical Mechanics, Orbital Mechanics, Introduction to Computer Programming.

University of British Columbia, Vancouver, Canada
Graduate level: Observational Astronomy, Galactic Astrophysics. Sep. 2021 - Apr. 2022

COMPUTER SKILLS

General Coding: Python, C, LaTeX, Tensorflow, Matlab.
Astronomical Data Analysis: CASA, CARTA, GILDAS/CLASS, SAOImageDS9, Astropy, Specutils, RADEX.
Astronomical Simulation Code: Phantom, Enzo, Dice.

TEACHING EXPERIENCE

University of British Columbia, Vancouver, Canada Jan. 2024 – Apr 2024
Teaching assistant for undergrad course: *"Thermal Physics"*. Supervisor: Prof. Steven Plotkin.

University of British Columbia, Vancouver, Canada Jan. 2022 – Apr. 2022
Teaching assistant for undergrad course: *"Thermal Physics"*. Supervisor: Prof. Joanna Karczmarek.

University of British Columbia, Vancouver, Canada Sep. 2021 – Dec. 2021
Teaching assistant for undergrad course: *"Introduction to Solar System"*. Supervisor: Dr. Joschua Hellemeier.

REFERENCES

Prof. Allison Man
Department of Physics and Astronomy
University of British Columbia
Vancouver, Canada.
phas.ubc.ca/users/allison-man
aman@phas.ubc.ca

Dr. Paola Andreani
European Southern Observatory
(ESO)
Garching bei Munchen, Germany.
www.eso.org/∼ pandrean/index.html
pandrean@eso.org

Dr. Carlos De Breuck
European Southern Observatory
(ESO)
Garching bei Munchen, Germany.
https://www.eso.org/∼cdebreuc/
cdebreuc@eso.org

Prof. Shant Baghram
Department of Physics
Sharif University of Technology
Tehran, Iran.
sharif.edu/∼baghram
baghram@sharif.edu