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Nima Chartab

Professional Appointments

2022–Present **Carnegie Institution for Science, Observatories, Pasadena, CA, USA**, *Postdoctoral Fellow*, *Extragalactic Astrophysics*.
Supervisor: Dr. Andrew Newman

2021–2022 **University of California, Irvine, CA, USA**, *Postdoctoral Scholar*, *Extragalactic Astrophysics*.
Supervisor: Prof. Asantha Cooray

Education

2016–2021 **University of California, Riverside, CA, USA**, *Ph.D.*, *Physics – Observational Astronomy*.
Ph.D. Thesis: Evolution of Galaxies in Different Environments Over Cosmic Time
Advisor: Prof. Bahram Mobasher

2014–2016 **Sharif University of Technology, Tehran, Iran**, *M.Sc.*, *Physics*.
M.Sc. Thesis: The Effective Field Theory of Cosmological Large Scale Structures
Advisor: Dr. Ali Akbar Abolhasani

2009–2014 **Sharif University of Technology, Tehran, Iran**, *B.Sc.*, *Electrical Engineering – Electronics*.
B.Sc. Thesis: Design and Implementation of a SIM Card Programmable Digital Board Frame
Advisor: Dr. Reza Sarvari

Research Interests

Extragalactic Astrophysics

Galaxy Formation and Evolution

Large-Scale Structures

Machine Learning Applications in Astronomy

Research Experience

2022–Present **Postdoctoral Researcher**, *Observatories*, Carnegie Institution for Science, Pasadena, CA, USA.

2021–2022 **Postdoctoral Researcher**, *Department of Physics and Astronomy*, University of California, Irvine, CA, USA.

2016–2021 **Graduate Student Researcher**, *Department of Physics and Astronomy*, University of California, Riverside, CA, USA.

2014–2016 **Graduate Student Researcher**, *Department of Physics*, Sharif University of Technology, Tehran, Iran.

2013–2014 **Undergraduate Student Researcher**, *Department of Electrical Engineering*, Sharif University of Technology, Tehran, Iran.

Honors and Awards

2021 **Robert T. Poe Memorial Scholarship Award – Presented for Outstanding Ph.D. Graduate**, *Physics Dept. of University of California, Riverside*, CA, USA.

2021 **Outstanding Teaching Assistant Award**, *University of California, Riverside*, CA, USA.

2016–2017 **Dean's Distinguished Fellowship**, *University of California, Riverside*, CA, USA.

Oct 2009 **Gold Medal Winner**, 3^{rd} *International Olympiad on Astronomy and Astrophysics*, Tehran, Iran.

2009–2016 **Fellowship**, *as a member of National Iranian Elites Foundation*, Tehran, Iran.

Sep 2008 **Gold Medal Winner**, 4^{th} *National Astronomy and Astrophysics Olympiad*, Tehran, Iran.

Successful Proposals and Grants

2023 **NASA/JPL Keck Research Grant**, *PI*, "Uncovering UV-dim Protoclusters Identified in the IGM Maps at Cosmic Noon", $\sim \$15K$.

2023 **NSF PAARE Program**, *Co-I*, "California-Hawaii Astrophysics Mentoring Partnership (CHAMP)", $\sim \$425K$.

2022 **NSF AAG**, *Co-I*, "Collaborative Research: Exploring Early Galaxy Formation and the Epoch of Reionization with the Hawaii-Two-0 (H20) Survey", $\sim \$427K$.

2022 **6 Nights of Magellan/FIRE**, *PI*, "Near-IR Spectroscopy of Herschel-ALMA Selected Galaxies at Cosmic Noon".

2022 **HST Cycle 30, ID. 17058**, *Co-I*, "Augmenting the SFR-M_* Plane with Galaxy Star Formation History Trajectories".

2021 **JWST Proposal. Cycle 1, ID. 2659**, *Co-I*, "Beasts in the Bubbles: Characterizing ultra-luminous galaxies at Cosmic Dawn".

2021 **20-ADAP20-0311**, *Co-I*, "Deep Neural Network Generated Imaging and Spectroscopic Data for Euclid, SPHEREx and Roman Space Telescopes", $\sim \$200K$.

2020 **9 Nights of Keck II/DEIMOS**, *Co-I*, "High Redshift Proto-clusters in the H20 Deep Fields".

Observing Experience

2022–Present 9 Nights Observing Experience with IMACS on Magellan Baade Telescope

2022–2023 6 Nights Observing Experience with FIRE on Magellan Baade Telescope

2020–Present 25 Nights Observing Experience with DEIMOS on Keck II Telescope

2019 3 Nights Observing Experience with Hyper Suprime-Cam on Subaru Telescope

2017–Present 7 Nights Observing Experience with MOSFIRE on Keck I Telescope

Teaching Experience

2016–2021 **Teaching Assistant**, *University of California, Riverside*, CA, USA.
- Courses: Introduction to Applied Data Science, General Physics, General Physics Laboratory, Energy and The Environment, The Origins, and History of The Universe.

2019–Present **Coach and Test Writer**, *National Astronomy and Astrophysics Olympiad*, USA Astronomy and Astrophysics Organization, USA.
- Courses: Cosmology, Fundamentals of Spherical Astronomy.

2014–2016 **Teaching Assistant**, *Sharif University of Technology*, Tehran, Iran.
- Courses: Cosmology, Electromagnetism, and Special Relativity.

2009–2016 **Instructor and Test Writer**, *National Astronomy and Astrophysics Olympiad*, Young Scholars Club, Tehran, Iran.
- Courses: Introduction to Thermodynamics, Astronomical Data Analysis, Methods of Observational Astronomy, Astrophysics: Stellar Structure and Their Evolution, Introduction to Astrophysics, Data Reduction and Error Analysis, and Introduction to Electromagnetism

Academic Activities and Services

2020–Present **Referee for AAS Journals (ApJ, ApJ Letters, AJ)**.

2023 **NASA Proposal Review Panel**.

2023 **Time Allocation Committee Service for Subaru**.

2022 **Organizer of Carnegie Journal Clubs (Tea Sessions)**.

2021–Present **Member of The Euclid team**.

2019–Present **Member of The Hawaii Two-0 (H20) Collaboration**.

2019–Present **Member of USA Astronomy and Astrophysics Organization**.
• Service: Test Writer and Coach for the USA Astronomy and Astrophysics Olympiad Team

Apr 2018 **Conference Local Organizer Committee**, *The Art of Measuring Physical Parameters in Galaxies*, University of California, Riverside, CA, USA.

2018–Present **Member of The COSMOS Collaboration**.

2016–Present **Member of The CANDELS Collaboration**.

2018–Present **Member of American Astronomical Society (AAS)**.

2012–2016 **Astronomy & Astrophysics Olympiad Committee Member**, *Young Scholars Club*, Tehran, Iran.

Talks

May 2023 **COSMOS Team Meeting**, *Rochester Institute of Technology*, NY, USA.
"LATIS: The Stellar Mass-Metallicity Relation of Star-forming Galaxies at $z \sim 2.5$"

Jan 2023 **American Astronomical Society 241st Meeting**, *Washington State Convention Center*, WA, USA.
"A Machine-learning Approach to Predict Missing Flux Densities in Multiband Galaxy Surveys"

June 2022 **Seminar Talk**, *Carnegie Institution for Science*, CA, USA (Invited).
"Evolution of Galaxies in Different Environments Over Cosmic Time"

Apr 2022 **SOFIA Tele-Talk**, (Invited).
"Gas Phase Metallicities in Local ULIRGs"

Aug 2020 **CANDELS SED Fitting Working Group Meeting**, Virtual (invited).
"The Environmental Imprint on the Gas-phase Metallicity of Galaxies at $1.37 \leq z \leq 2.61$"

Nov 2019 **The Art of Measuring Galaxy Physical Properties**, *National Institute of Astrophysics (INAF–IASF)*, Milano, Italy.
"Large-scale Structures in the CANDELS Fields: The Role of the Environment in Star Formation Activity"

May 2019 **COSMOS Team Meeting**, *Computational Center for Astrophysics at the Flatiron Institute*, NY, USA.
"Large-scale Structures in the CANDELS Fields: The Role of the Environment in Star Formation Activity"

Jan 2019 **American Astronomical Society 233rd Meeting**, *Washington State Convention Center*, WA, USA.
"The Role of Environment in Star Formation Activity out to $z \sim 5$"

Oct 2018 **The Universe by the Light of CANDELS: Past and Future**, *University of Massachusetts Amherst*, MA, USA.
"The Role of Environment in Star Formation Activity out to $z \sim 5$"

Jul 2018 **The Near, The Far, and the In-Between: Synergy between Low and High Redshift Galaxy Evolution Studies in the Era of JWST and Euclid**, *European Space Research and Technology Centre (ESTEC)*, Noordwijk, The Netherlands.
"Evolution of Galaxies in Different Environments Over Cosmic Time"

Apr 2018 **The Art of Measuring Physical Parameters in Galaxies**, *University of California, Riverside*, CA, USA.
"Evolution of Galaxies in Different Environments Over Cosmic Time"

Skills and Abilities

Language Proficiency	English (Fluent), Azerbaijani (Native), Persian (Native), Turkish (Fluent)
Programming Languages	Python, C/C++, R, MATLAB, PyRAF, HTML
Operating Systems	MacOS, Linux, Windows
Software/Tools	Git,LaTeX, Mathematica, MOSFIRE Data Reduction Pipeline (DRP), DEEP2 DEIMOS Data Reduction Pipeline, Pypelt, SED Fitting Codes (LePhare, Bagpipes, EAZY, CIGALE), TOPCAT, ds9, ginga
Hard Skills	Machine Learning and Deep Learning (Clustering, Classification, Regression, Decision Trees, Support Vector Machines, Neural Networks, NLP), Cloud Computing, Bayesian Statistics

Refereed Publications

Lead Author Publications:

Oct 2023 **Chartab N.**, Newman A. B., et al. **2023, ApJ, in press**, "LATIS: The Stellar Mass-Metallicity Relation of Star-forming Galaxies at $z \sim 2.5$"

Jan 2023 **Chartab N.**, Mobasher B., et al. **2023, ApJ, 942, 91**, "A Machine-learning Approach to Predict Missing Flux Densities in Multiband Galaxy Surveys"

May 2022 **Chartab N.**, Cooray A., et al. **2022, Nature Astronomy, 6, 844**, "Low gas-phase metallicities of ultraluminous infrared galaxies are a result of dust obscuration"

Feb 2021 **Chartab N.**, Mobasher B., et al. **2021, ApJ, 908, 120**, "The MOSDEF Survey: Environmental dependence of the gas-phase metallicity of galaxies at $1.4 \leq z \leq 2.6$"

Feb 2020 **Chartab N.**, Mobasher B., et al. **2020, ApJ, 890, 7**, "Large-scale Structures in the CANDELS Fields: The Role of the Environment in Star Formation Activity"

Student-Led or Major Contributor Publications:

Jul 2023 Sattari Z. , Mobasher B., **Chartab N.**, et al. **2023, ApJ, 951, 147**, "Fraction of Clumpy Star-forming Galaxies at 0.5 $\leq$ z $\leq$ 3 in UVCANDELS: Dependence on Stellar Mass and Environment"

Feb 2023 Pacifici C., Iyer K. G., Mobasher B., da Cunha E., Acquaviva V., Burgarella D., Calistro Rivera G., Carnall A. C., Chang Y., **Chartab N.**, et. al. **2023, ApJ, 944, 141**, "The Art of Measuring Physical Parameters in Galaxies: A Critical Assessment of Spectral Energy Distribution Fitting Techniques"

Apr 2022 Liu B., **Chartab N.**, et al. **2022, ApJ, 929, 41**, "Massive molecular gas reservoir in a luminous sub-millimeter galaxy during cosmic noon"

Mar 2021 Sattari Z. , Mobasher B., **Chartab N.**, et al. **2021, ApJ, 910, 57**, "Evidence for gas-phase metal deficiency in massive protocluster galaxies at $z \sim 2.2$"

Feb 2021 Simet M., **Chartab N.**, et. al. **2021, ApJ, 908, 47**, "Comparison of Observed Galaxy Properties with Semianalytic Model Predictions using Machine Learning"

Nov 2020 Shivaei I., Darvish B., Sattari Z., **Chartab N.**, et. al. **2020, ApJ, 903, 28**, "Dependence of the IRX-β Dust Attenuation Relation on Metallicity and Environment"

Jul 2020 Shahidi A., Mobasher B., Nayyeri H., Hemmati S., Wiklind T., **Chartab N.**, et. al. **2020, ApJ, 897, 44**, "Selection of Massive Evolved Galaxies at $3 \leq z \leq 4.5$ in the CANDELS Fields"

Mar 2020 Darvish B., Scoville N., Martin C., Sobral D., Mobasher B., Rettura A., Matthee J., Capak P., **Chartab N.**, et. al. **2020, ApJ, 892, 8**, "Spectroscopic Confirmation of a Coma Cluster Progenitor at $z \sim 2.2$"

Collaborative Contributions:

Oct 2023 Weaver J. R., Zalesky L., Kokorev V., McPartland C. J. R., **Chartab N.**, et. al. **2023, ApJS, in press**, "The Farmer: A reproducible profile-fitting photometry package for deep galaxy surveys"

Oct 2023 Berta S., Stanley F., Ismail D., including **Chartab N.**, **2023, A&A, 678, A28**, "z-GAL: A NOEMA spectroscopic redshift survey of bright Herschel galaxies. III. Physical properties"

Oct 2023 Ismail D., Beelen A., Buat V., including **Chartab N.**, **2023, A&A, 678, A27**, "z-GAL: A NOEMA spectroscopic redshift survey of bright Herschel galaxies. II. Dust properties"

Oct 2023 Cox P., Neri R., Berta S., including **Chartab N.**, **2023, A&A, 678, A26**, "z-GAL: A NOEMA spectroscopic redshift survey of bright Herschel galaxies. I. Overview"

Oct 2023 Martin A. , Guo Y., Wang X., Koekemoer A. M., Rafelski M., Teplitz H. I., Windhorst R. A., Alavi A., Grogin N. A., Prichard L., Sunnquist B., Ceverino D., **Chartab N.**, et al. **2023, ApJ, 955, 106**, "UV-bright Star-forming Clumps and Their Host Galaxies in UVCANDELS at $0.5 \leq z \leq 1$"

Sep 2023 Rezaee S., Reddy N., Topping M., Shivaei I., Shapley A., Fetherolf T., Kriek M., Coil A., Mobasher B., Siana B., Du X., Khostovan A., Weldon A., Emami N., **Chartab N. 2023, MNRAS, 526, 1512**, "Exploring the correlation between Hα-to-UV ratio and burstiness for typical star-forming galaxies at z~ 2"

Sep 2023 Weaver J. R., Davidzon I., Toft S., Ilbert O., McCracken H. J., Gould K. M. L., Jespersen C. K., Steinhardt C., Lagos C. D. P., Capak P. L., Casey C. M., **Chartab N.**, et al. **2023, A&A, 677, A184**, "COSMOS2020: The galaxy stellar mass function. The assembly and star formation cessation of galaxies at $0.2< z \leq 7.5$"

Sep 2023 Casey C. M., Kartaltepe J. S., Drakos N. E., including **Chartab N.**, **2023, ApJ, 954, 31**, "COSMOS-Web: An Overview of the JWST Cosmic Origins Survey"

Aug 2023 Chávez Ortiz Ó, A., Finkelstein S. L., Davis D., including **Chartab N.**, **2023, ApJ, 952, 110**, "Introducing the Texas Euclid Survey for Lyα (TESLA) Survey: Initial Study Correlating Galaxy Properties to Lyα Emission"

Aug 2023 Wang X., Teplitz H. I., Smith B. M., including **Chartab N.**, **2023, ApJ, submitted**, "The Lyman Continuum Escape Fraction of Star-forming Galaxies at $2.4z3.7$ from UVCANDELS"

Apr 2023 Kuschel M., Scarlata C., Mehta V., Teplitz H. I., Rafelski M., Wang X., Sunnquist B., Prichard L., Grogin N., Windhorst R., Rutkowski M., Alavi A., **Chartab N.**, et. al. **2023, ApJ, 947, 17**, "Investigating the Dominant Environmental Quenching Process in UVCANDELS/COSMOS Groups"

Feb 2023 Scoville N., Faisst A., Weaver J., Toft S., McCracken H. J., Ilbert O., Diaz-Santos T., Staguhn J., Koda J., Casey C., Sanders D., Mobasher B., **Chartab N.**, et. al. **2023, ApJ, 943, 82**, "Cosmic Evolution of Gas and Star Formation"

Jan 2023 Kodra D., Andrews B., Newman J., Finkelstein S., Fontana A., Hathi N., Salvato M., Wiklind T., Wuyts S., Broussard A., **Chartab N.**, et. al. **2023, ApJ, 942, 36**, "Optimized Photometric Redshifts for the Cosmic Assembly Near-infrared Deep Extragalactic Legacy Survey (CANDELS)"

Nov 2022 Shah E., Kartaltepe J., Magagnoli C., Cox I., Wetherell C., Vanderhoof B., Cooke K., Calabro A., **Chartab N.**, et. al. **2022, ApJ, 940, 4**, "Investigating the Effect of Galaxy Interactions on Star Formation at $0.5 < z < 3.0$"

Dec 2020 Shah E., Kartaltepe J., Magagnoli C., Cox I., Wetherell C., Vanderhoof B., Calabro A., **Chartab N.**, et. al. **2020, ApJ, 904, 107**, "Investigating the Effect of Galaxy Interactions on the Enhancement of Active Galactic Nuclei at $0.5 < z < 3.0$"

Jun 2020 Hemmati S., Mobasher B., Nayyeri H., Shahidi A., Capak P., Darvish B., **Chartab N.**, et. al. **2020, ApJL, 896, 17**, "Bridging between the Integrated and Resolved Main Sequence of Star Formation"

Dec 2019 Jafariyazani M., Mobasher B., Hemmati S., Fetherolf T., Khostovan A. A., **Chartab N.**, **2019, ApJ, 887, 204**, "Spatially Resolved Properties of Galaxies from CANDELS+MUSE: Radial Extinction Profile and Insights on Quenching"

Oct 2019 Khostovan A. A., Sobral D., Mobasher B., Matthee J., Cochran, R. K., **Chartab N.**, et. al. **2019, MNRAS, 489, 555**, "The clustering of typical Lyα emitters from $z \sim 2.5 - 6$: host halo masses depend on Lyα and UV luminosities"