

Vihang Mehta

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👤 <http://github.com/vihangmehta>

Education

- 2012 – present 📌 **University of Minnesota, MN, USA**
Candidate for Ph.D. in Astrophysics (expected to graduate in Spr 2018)
Advisor: Dr. Claudia Scarlata
Thesis title: *Studying star-formation in faint, low-mass galaxies*
- 2010 – 2012 📌 **University of Minnesota, MN, USA**
B.Sc. Astrophysics
Thesis title: *Separating probable supergiants in M31 and M33*
- 2008 – 2010 📌 **SUNY Stony Brook, NY, USA**

Research Publications

First author publications

- 📌 **Mehta, V.**, Scarlata, C., Capak, P., Davidzon, I., Faisst, A., Hsieh, B. C., Laigle, C., Phillips, J., Silverman, J., Strauss, M. A., Coupon, J., Foucaud, S., Hemmati, S., Ilbert, O., Jarvis, M., Masters, D., McCracken, H. J., Mobasher, B., Ouchi, M., Shibuya, T., Tanaka, M. & Wang, W.-H., *SPLASH-SXDF Multi-wavelength Photometric Catalog*, 2017b, arXiv:1711.05280
- 📌 **Mehta, V.**, Scarlata, C., Rafelski, M., Gburek, T., Teplitz, H. I., Alavi, A., Boylan-Kolchin, M., Finkelstein, S., Gardner, J. P., Grogin, N., Koekemoer, A., Kurczynski, P., Siana, B., Codoreanu, A., de Mello, D. F., Lee, K.-S. & Soto, E., *UVUDF: UV Luminosity Functions at the Cosmic High Noon*, 2017a, ApJ, 838, 29
- 📌 **Mehta, V.**, Scarlata, C., Colbert, J. W., Dai, Y. S., Dressler, A., Henry, A., Malkan, M., Rafelski, M., Siana, B., Teplitz, H. I., Bagley, M., Beck, M., Ross, N. R., Rutkowski, M. & Wang, Y., *Predicting the Redshift 2 H α Luminosity Function Using [OIII] Emission Line Galaxies*, 2015, ApJ, 811, 141

Other publications

- 📌 Rutkowski, M. J., Scarlata, C., Henry, A., Hayes, M., **Mehta, V.**, Hathi, N., Cohen, S., Windhorst, R., Koekemoer, A. M., Teplitz, H. I., Haardt, F. & Siana, B., *The Lyman Continuum Escape Fraction of Emission Line-selected $z \sim 2.5$ Galaxies Is Less Than 15%*, 2017, ApJL, 841, L27
- 📌 Bagley, M. B., Scarlata, C., Henry, A., Rafelski, M., Malkan, M., Teplitz, H., Dai, Y. S., Baronchelli, I., Colbert, J., Rutkowski, M., **Mehta, V.**, Dressler, A., McCarthy, P., Bunker, A., Atek, H., Garel, T., Martin, C. L., Hathi, N. & Siana, B., *A High Space Density of Luminous Lyman Alpha Emitters at $z \sim 6.5$* , 2017, ApJ, 837, 11
- 📌 Rutkowski, M. J., Scarlata, C., Haardt, F., Siana, B., Henry, A., Rafelski, M., Hayes, M., Salvato, M., Pahl, A. J., **Mehta, V.**, Beck, M., Malkan, M. & Teplitz, H. I., *Lyman Continuum Escape Fraction of Star-forming Dwarf Galaxies at $z \sim 1$* , 2016, ApJ, 819, 81

Research Publications (continued)

- Rafelski, M., Teplitz, H. I., Gardner, J. P., Coe, D., Bond, N. A., Koekemoer, A. M., Grogin, N., Kurczynski, P., McGrath, E. J., Bourque, M., Atek, H., Brown, T. M., Colbert, J. W., Codoreanu, A., Ferguson, H. C., Finkelstein, S. L., Gawiser, E., Giavalisco, M., Gronwall, C., Hanish, D. J., Lee, K.-S., **Mehta, V.**, de Mello, D. F., Ravindranath, S., Ryan, R. E., Scarlata, C., Siana, B., Soto, E. & Voyer, E. N., *UVUDF: Ultraviolet Through Near-infrared Catalog and Photometric Redshifts of Galaxies in the Hubble Ultra Deep Field*, 2015, *AJ*, 150, 31

Awards

- 2016 ■ **Doctoral Dissertation Fellowship: 2016-17**
University of Minnesota

Talks and Presentations

Conference Talks

- Jan 2018 ■ 231st AAS Winter Meeting
Washington, DC
Talk: *Star-formation in low-mass galaxies*
- Jun 2016 ■ COSMOS Team Meeting
STScI, Baltimore, MD
Talk: *SPLASH-SXDF multi-wavelength catalog*

Invited Seminars and Colloquia

- Oct 2017 ■ University of Minnesota: Cosmology Lunch Seminar
Talk: *UV Luminosity Functions at the Cosmic high-noon*

Poster Presentations

First author posters

- Apr 2017 ■ **Mehta, V.**, Scarlata, C., Rafelski, M., Gburek, T., Teplitz, H. I., Alavi, A., Boylan-Kolchin, M., Finkelstein, S., Gardner, J. P., Grogin, N., Koekemoer, A., Kurczynski, P., Siana, B., Codoreanu, A., de Mello, D. F., Lee, K.-S. & Soto, E., *UVUDF: UV Luminosity Functions at the Cosmic High-Noon*, **2017 STScI Spring Symposium: Lifecycle of Metals throughout the Universe**, STScI, Baltimore, MD
- **Mehta, V.**, Scarlata, C., Capak, P., Silverman, J., Hayes, M. & Colbert, J. W., *Studying Extreme Emission Line Galaxies in SPLASH-SXDF*, **2017 Doctoral Research Showcase**, University of Minnesota, Minneapolis, MN
- Jan 2016 ■ **Mehta, V.**, Scarlata, C., Rafelski, M., Gburek, T., Teplitz, H. I., Alavi, A., Siana, B. D. & Finkelstein, S. L., *The faint end slope of the UV LF at $z \sim 2$ from the Hubble UV UltraDeep field*, **227th AAS Winter Meeting**, Kissimmee, FL

Poster Presentations (continued)

Other contributed posters (primary presenter listed first)

- Jan 2016
- Bagley, M. B., Scarlata, C., Dai, Y. S., Rafelski, M., Baronchelli, I., Colbert, J. W., Dominguez, A., Hathi, N. P., Henry, A. L., Malkan, M. A., Martin, C. L., **Mehta, V.**, Pahl, A., Ross, N., Rutkowski, M. J., Teplitz, H. I. & WISP Team, *A Search for $z > 6.5$ Lyman-alpha Emitting Galaxies with WISP*, 227th AAS Winter Meeting, Kissimmee, FL
 - Pahl, A., Scarlata, C., Rutkowski, M. J., Zanella, A., Bagley, M. B., Colbert, J. W., Baronchelli, I., Henry, A. L., Hathi, N. P., Teplitz, H. I., Rafelski, M., Dai, Y. S., Malkan, M. A., **Mehta, V.** & Beck, M., *The Mass-Size Relation of Quenched, Quiescent Galaxies in the WISP Survey*, 227th AAS Winter Meeting, Kissimmee, FL
 - Rutkowski, M. J., Scarlata, C., Haardt, F., Siana, B. D., Rafelski, M., Henry, A. L., Hayes, M., Salvato, M., Pahl, A., **Mehta, V.**, Beck, M., Malkan, M. A. & Teplitz, H. I., *The Lyman continuum escape fraction of low mass star-forming galaxies at $z \sim 1$* , 227th AAS Winter Meeting, Kissimmee, FL
 - Teplitz, H. I., Dai, Y. S., Malkan, M. A., Scarlata, C., Colbert, J. W., Atek, H., Bagley, M. B., Baronchelli, I., Bedregal, A., Beck, M., Bunker, A., Dominguez, A., Hathi, N. P., Henry, A. L., **Mehta, V.**, Pahl, A., Rafelski, M., Ross, N., Rutkowski, M. J., Siana, B. D. & WISPs Team, *Emission line galaxy pairs up to $z = 1.5$ from the WISP survey*, 227th AAS Winter Meeting, Kissimmee, FL
- Jan 2015
- Rutkowski, M. J., Scarlata, C., Teplitz, H. I., Hayes, M., Salvato, M., Beck, M., **Mehta, V.** & Pahl, A., *The Lyman Continuum Escape Fraction of Dwarf Star-Forming Galaxies at $z \sim 1$* , 225th AAS Winter Meeting, Seattle, WA

Successful Proposals



- 2017
- HST Cycle 25, Constraining the evolution of the Hubble Parameter using cosmic chronometers, Proposal ID#15015, **CoI**
- 2015
- HST Cycle 23, Emission Line Galaxy Constraints from HST: Towards Accurate Forecasts for WFIRST and Euclid, Proposal ID#14311, **CoI**
 - HST Cycle 23, Does All The Lyman Continuum Emission Escape From Young, Low Mass Starbursts?, Proposal ID#14123, **CoI**
 - HST Cycle 23, WFC3 Infrared Spectroscopic Parallel Survey: The WISP Deep Fields, Proposal ID#14178, **CoI**

Professional Skills



- General / Scientific
- ▶ Imaging and spectroscopic data reduction and analysis in optical and near-infrared
 - ▶ Reduction and analysis of slitless spectroscopy data
 - ▶ Implementation of statistical tools (e.g., MCMC, MLE, clustering)
 - ▶ Proficiency with multiprocessing and high-performance computing
 - ▶ Video, graphics and webpage design
- Coding
- Python, L^AT_EX, IDL
- Web Dev
- HTML, CSS

Teaching and Student Supervision





Teaching Experience

- Spr 2015,17  Teaching Assitant
AST 4031: Interpretation and Analysis of Astrophysical Data (Prof.: C. Scarlata)
University of Minnesota
- Spr 2013  Lab Instructor
AST 1001: Exploring the Universe
University of Minnesota




Student Supervision

- 2015-16  Under-graduate thesis project: A. Garon (UMN)
Topic: *Modeling and Removing Contamination in WISP Grism Data*
(Now a graduate student at UMN)
- 2014-15  Under-graduate thesis project: T. Gburek (UMN)
Topic: *Simulations for modelling completeness in UVUDF*
(Now a graduate student at UC Riverside)




Associations

-  Spitzer Large Area Survey with Hyper-Suprime-Cam (SPLASH) Collaboration, Member
-  Hubble UltraViolet Ultra Deep Field (UVUDF) Collaboration, Member
-  WFC3 Infrared Spectroscopic Parallel (WISP) Survey Collaboration, Member
-  American Astronomical Society (AAS), Junior Member

Outreach

- 2012 – 2017  Public Outreach
Host for various outreach events on behalf of the Minnesota Institute for Astrophysics
- 2014  Minnesota State Fair Booth
Host for the UMN College of Physics and Astronomy Booth
- 2013  Friday Public Nights
Host for public observing nights at UMN

References

-  **Dr. Claudia Scarlata**
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Minnesota Institute for Astrophysics
University of Minnesota
116 Chruch St. SE, Minneapolis, MN 55113
 mscarlat@umn.edu
-  More references are available upon request.