C.V DIGVIJAY (JAY) WADEKAR

Contact jay.wadekar@nyu.edu Website

Education

New York University (NYU) — New York, NY *May 2021 (Expected)*
Ph.D. alongside MS & M.Phil in Astrophysics GPA: 3.89/4.0

Indian Institute of Technology, Bombay (IITB)—Mumbai, India *August 2015*
B.Tech (Bachelor of Technology) in Engineering Physics with Honors in Physics

Research Interests Cosmology with the large-scale structure, analytic covariance matrices, 21cm intensity mapping, neural networks, dark matter phenomenology.

Submitted Manuscripts

HInet: Generating neutral hydrogen from dark matter with neural networks arXiv:2007.10340
D. Wadekar, *F. Villaescusa-Navarro, S. Ho, L. Perreault-Levasseur* Submitted to ApJ

The Galaxy Power Spectrum Multipoles Covariance in Perturbation Theory arXiv:1910.02914
D. Wadekar, *R. Scoccimarro* Submitted to PRD

First direct astrophysical constraints on dark matter interactions with ordinary matter at very low velocities arXiv:1903.12190
D. Wadekar, *G. Farrar* Submitted to PRL

Peer Reviewed Journal Publications

Comment on "Calorimetric Dark Matter Detection with Galactic Center Gas Clouds"
G. Farrar , F. Lockman, N. McClure-Griffiths, ***D. Wadekar*** PRL 124, 029001 (2020)

Zeldovich pancakes at redshift zero: the equilibration state and phase space properties.
D. Wadekar, *S. Hansen* [arXiv:1411.6627] MNRAS 447,1337 (2015)

Variance Adaptation in Navigational Decision Making
R. Gepner, J. Wolk, ***D. Wadekar***, *S. Dvali, M. Gershow* eLife (2018); 7:e37945

Manuscripts in preparation

Cosmological constraints from BOSS with analytic covariance matrices arXiv:2008.xxxx
D. Wadekar, *M. Ivanov, R. Scoccimarro*

Neutral hydrogen assembly bias with machine learning arXiv:2008.xxxx
D. Wadekar, *F. Villaescusa-Navarro, S. Ho, L. Perreault-Levasseur*

Talks

Cosmology seminar, TIFR, Mumbai, India **(invited)** December 2019
Princeton/IAS Cosmology Lunch Talk , Princeton, NJ **(invited)** December 2019
Cosmology seminar, UC Berkeley, CA **(invited)** [link] October 2019
Workshop on dynamics of LSS formation, MIAPP, Garching, Germany **(invited)** July 2019
BCCP workshop: Spectroscopic surveys, UC Berkeley, CA (Contributed) January 2020
April Meeting of the American Physical Society(APS), Denver, CO (contributed): April 2019
-Received DAP travel award (600$) & DGRAV travel award (300$)
April Meeting of the American Physical Society(APS), Columbus, OH (contributed): April 2018
-Received DAP travel award (600$)
Pheno & Vino seminar presentation, NYU (contributed) March 2017
NYU, AMNH & CUNY Astrofest, NYU (contributed) October 2019

Awards & Honors

- **James Arthur Dissertation Fellowship** at NYU, 2019 - current
- **Henry Mitchell McCracken Fellowship** at NYU, 2015 - 2019
- **All India Rank 139** in IIT-JEE 2011 exam (**99.97 percentile**) among 485,000 candidates.
- **KVPY fellowship** (Kishore Vaigynaik Protsahan Yojana) by the Govt. of India (declined)
- **NTSE fellowship** (National Talent Search Scholarship) by the Govt. of India.

- Among **top 30** students selected from all over India to attend Orientation cum Selection Camp (OCSC) for International Olympiad on Astronomy and Astrophysics (IOAA) and International Junior Science Olympaid (IJSO), after clearing two nationwide examinations participated in by more than 15000 students.
- Secured certificate of merit for being in the national **top 1%** in National standard examination in Physics (NSEP).

Posters

Max Planck Institute for Astrophysics, Berlin, Germany — July 2018
NYU, AMNH & CUNY Astrofest, NYU — October 2018

Collaborations

Member of the Dark Energy Spectroscopic Instrument (DESI) collaboration — 2019-current

Teaching Experience

- Teaching Assistant(TA) at NYU for the undergraduate course Mathematical Physics *Spring 2018*
- TA at NYU for the undergraduate course Electricity & Magnetism- I *Fall 2016*
- TA at IITB for the undergraduate course Electromagnetism *Spring 2015*

Technical Skills

- *Programming:* C/C++, Python, Mathematica, FORTRAN77
- *Operating Systems:* Linux, Windows, Mac
- *Analysis Tools:* Pytorch, scikit-learn

Mentorship and Outreach

- *Academic Mentorship*: Fall 2014
  Tutored academically weak students at IIT Bombay in complex analysis and differential equations. Mentored two students in the physics department and helped them in clearing their backlogs.
- *Astronomy Club*: 2011-12
  Gave talks on future of astronomy at IIT Bombay which were open to the general public. I also headed a project in collaboration with the club to build a Solar Radio Telescope from scratch.

References

- *Prof. Roman Scoccimarro* (PhD advisor) — rs123@nyu.edu
- *Prof. Glennys Farrar* — gf25@nyu.edu
- *Prof. Shirley Ho* — shirleyho@flatironinstitute.org
- *Prof. Steen H. Hansen* — hansen@dark-cosmology.dk
- *Dr. Francisco Villaescusa-Navarro* — fvillaescusa@princeton.edu