

# Marion I. P. Dierickx

Harvard-Smithsonian Center for Astrophysics  
60 Garden St MS-42  
Cambridge, M.A. 02138 U.S.A.

Phone: (617) 495-7312

Email: [mdierickx@cfa.harvard.edu](mailto:mdierickx@cfa.harvard.edu)

URL: <https://mdierick.github.io>

## Research interests

Experimental cosmology: Cosmic Microwave Background.

Millimeter-wave instrumentation: Optics; Field Deployment; Polar Operations.

## Appointments held

2020-present *Research associate*, Harvard-Smithsonian Center for Astrophysics  
Supervisor: John Kovac

2017-2020 *Postdoctoral Fellow*, Harvard-Smithsonian Center for Astrophysics  
Supervisor: John Kovac

## Education

2017 Ph.D. in Astronomy and Astrophysics, Harvard University  
Secondary Field in Computational Science and Engineering  
*Simulations of Local Group Galactic Interactions*  
Advisor: Abraham Loeb

2014 S.M. in Astrophysics, Harvard University

2012 B.A. in Astrophysics, *Summa Cum Laude* with Highest Honors, Harvard University  
*Constraining Local Group Dark Matter Using M33's Past Orbit*  
Advisor: Abraham Loeb

## Honors and awards

2014-19 Four-time recipient of Derek Bok Center Certificate of Distinction in Teaching

2013-14 John P. and Carol J. Merrill Graduate Fellowship

2012 Leo Goldberg Prize

2012 Thomas T. Hoopes Prize

2012 Phi Beta Kappa

2010 Weissman International Internship Program Fellow

## Lead author publications

- 2018 “Ultra-thin large-aperture vacuum windows for millimeter wavelengths receivers”  
D. Barkats, **M. Dierickx**, J. Kovac et al. (78 authors) *Proceedings of the SPIE Conference Series 10708* 107082K
- 2017 “An Upper Limit on the Milky Way Mass from the Orbit of the Sagittarius Dwarf Satellite”  
**M. Dierickx** and A. Loeb. *The Astrophysical Journal* 847:42
- 2017 “The >100 kpc Distant Spur of the Sagittarius Stream and the Outer Virgo Overdensity, as Seen in PS1 RR Lyrae Stars”  
B. Sesar, N. Hernitschek, **M. Dierickx**, M. Fardal and H.-W. Rix. *The Astrophysical Journal Letters* 844:L4
- 2017 “Predicted Extension of the Sagittarius Stream to the Milky Way Virial Radius”  
**M. Dierickx** and A. Loeb. *The Astrophysical Journal* 836:92
- 2015 “Submillimeter Array high-angular resolution observations of the Monoceros R2 star-forming cluster”  
**M. Dierickx**, I. Jiménez-Serra, V. M. Rivilla and Q. Zhang. *The Astrophysical Journal* 803:89
- 2014 “Signatures of the M31-M32 galactic collision”  
**M. Dierickx**, L. Blecha and A. Loeb. *The Astrophysical Journal Letters* 788:L38-L44
- 2013 “A new radio recombination line maser object toward the MonR2 HII region”  
I. Jiménez-Serra, A. Báez-Rubio, V. M. Rivilla, J. Martín-Pintado, Q. Zhang, **M. Dierickx**, and N. Patel. *The Astrophysical Journal Letters* 763:L4-L10
- 2010 “Observational evidence from SDSS for a merger origin of the Milky Way’s thick disk”  
**M. Dierickx**, R. Klement, H.-W. Rix and C. Liu. *The Astrophysical Journal Letters* 725:L186-L190

## Selected invited talks

- 2020 “Constraining the primordial gravitational wave signal with BICEP/Keck observations of CMB polarization from the South Pole”  
Astrophysics, Gravitation and Cosmology Seminar, UIUC, IL (March 11, 2020).
- 2018 “BICEP/Keck: Constraining primordial gravitational waves with CMB polarization observations from the South Pole”  
Rencontres de Blois, Blois, France (June 6, 2018).
- 2018 “BICEP/Keck: Constraining primordial gravitational waves with CMB polarization observations from the South Pole”  
APC Colloquium, Paris, France (June 1, 2018).
- 2016 “The Sun as a Gravitational Lens”  
Breakthrough Discuss invited panelist, Stanford, CA (April 16, 2016).

## Selected contributed talks

- 2019 “BICEP/Keck: Constraining the primordial gravitational-wave signal with CMB polarization observations from the South Pole”  
2019 Meeting of the Division of Particles and Fields of the American Physical Society (August 31, 2019).
- 2019 “BICEP/Keck: Constraining the primordial gravitational-wave signal with CMB polarization observations from the South Pole”  
COSMO’19, RWTH Aachen University, Germany (September 4, 2019).
- 2019 “BICEP/Keck: Constraining primordial gravitational waves with CMB polarization observations from the South Pole”  
Cosmology on Safari, Hluhluwe, South Africa (March 4, 2019).

## Teaching and mentoring

### STUDENT MENTORING

- 2018-19 Emilia Morgan (Harvey Mudd College) - Optics and calibration hardware
- 2017-19 Liam Corrigan (Harvard College) - “Development of a Microwave Scatterometer and Investigation of Optical Properties of BICEP<sub>3</sub> Materials,” winner of 2019 Thomas T. Hoopes Prize.
- 2014-16 Eliot House (Harvard College) *Sophomore Advising Coordinator*

### TEACHING

- 2015-20 Freshman Seminar 21G – “First Stars and Life in the Cosmos” *Teaching Fellow*  
Cosmology seminar of 12 students. Responsible for 50% of in-class curriculum and 100% of course assignments.  
Four-time teaching award recipient, with student evaluation scores 4.5/5 (2015), 4.7/5 (2016), 4.6/5 (2017), 4.4/5 (2018), 5/5 (2019).
- 2014 Astronomy 16 – “Stellar and Planetary Astrophysics” *Teaching Fellow*  
Introductory undergraduate course of 40 students. Trained students in problem solving tutorials, lead lab sections for nocturnal astronomical observation sessions.  
Teaching award recipient, student evaluation score 4.7/5.

## Outreach and service

### PROFESSIONAL SERVICE

- 2020-present Harvard-Smithsonian Center for Astrophysics *Committee Member, Galaxies and Cosmology Seminar*  
Restructured talk series to promote diverse representation and provide opportunities to early-career researchers. Evaluated speaker applications and curated scientific content.

- 2015-19 Breakthrough Starshot *Theory Advisory Group*  
Evaluated practicality of propulsion methods for high speed interstellar mission.
- 2014-16 Harvard Astronomy Department *Committee on Academic Studies*  
Elected Student Representative by graduate student body. Oversaw academic progress of graduate students, administered and redesigned format of qualifying exam.

SELECTED INVITED LECTURES

- 2020 “To the Moon and Beyond: A New Space Race?”  
Invited panelist, Harvard Project for Asian and International Relations, Cambridge, USA (February 15, 2020)
- 2019 “Going Interstellar”  
Harvard-MIT Belgian Society, MIT, Cambridge, USA (March 12, 2019).
- 2018 “BICEP curls, Inflating the Universe, and more”  
Science Lecture, South Pole, Antarctica (December 16, 2018).
- 2018 “Galactic Collisions in the Local Group”  
Cape Cod Astronomical Society, Yarmouth, MA (August 2, 2018).
- 2018 “CMB Cosmology from the South Pole with BICEP/Keck”  
Harvard Summer School, Cambridge, MA (July 23, 2018).