

# Benjamin A. Cook

## Curriculum Vitae

### CONTACT INFORMATION

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### EDUCATION

**Harvard University**, Cambridge, MA 2014 – Present  
Ph.D. (*In progress*), Astronomy and Astrophysics  
Secondary Field, Computational Science and Engineering  
M.A. (2016), Astronomy and Astrophysics  
**Princeton University**, Princeton, NJ 2010 – 2014  
A.B. (2014), Astrophysical Sciences – Magna cum laude  
Thesis: *Keep Calm and Baryon: The Distribution of Baryons and Dark Matter in the Universe*  
Advisor: Prof. Neta Bahcall

### AWARDS AND HONORS

Certificate of Teaching Excellence – Derek Bok Center for Teaching and Learning 2016, 2017  
Awarded for Fall 2015 teaching of Harvard Astro 200  
Awarded for Fall 2016 teaching of Harvard Astro 17  
Graduate Research Fellowship – National Science Foundation 2014 – Present  
Elected to Sigma Xi Science Honor Society 2014  
AAS Chambliss Medal 2014  
Awarded for Jan. 2014 poster presentation at AAS 223.

### PUBLICATIONS

1. **Cook, B.A.**, Conroy, C., Pillepich, A., et al. 2016, “The Information Content of Stellar Halos: Stellar Population Gradients and Accretion Histories in Early-type Illustris Galaxies”, *ApJ*, 158, 15 [[arXiv:1610.00014](https://arxiv.org/abs/1610.00014)].
2. Hamann, F., Zakamska, N.L., Ross, N., et al. 2016, “Extremely Red Quasars in BOSS”, *MNRAS*, 464, 3431 [[arXiv:1609.07241](https://arxiv.org/abs/1609.07241)]
3. **Cook, B.A.**, Williams, P.K.G., and Berger, E. 2014, “Trends in Ultracool Dwarf Magnetism. II. The Inverse Correlation between X-ray Activity and Rotation as Evidence for a Bimodal Dynamo”, *ApJ*, 785, 10 [[arXiv:1310.6758](https://arxiv.org/abs/1310.6758)]
4. Williams, P.K.G., **Cook, B.A.**, and Berger, E. 2014, “Trends in Ultracool Dwarf Magnetism. I. X-ray Suppression and Radio Enhancement”, *ApJ*, 785, 9 [[arXiv:1310.6757](https://arxiv.org/abs/1310.6757)]
5. Pâris, I., Petitjean, P., Aubourg, É., et al. 2014, “The Sloan Digital Sky Survey quasar catalog: tenth data release”, *A&A*, 563, A54 [[arXiv:1311.4870](https://arxiv.org/abs/1311.4870)]

### PRESENTATIONS

#### Invited Talks

2016 CfA Summer Colloquium Series – Cambridge, MA July 2016  
*Illustris stellar halos: Cosmological simulations and the evolution of galaxies*

#### Contributed Talks

On the Origin (and Evolution) of Baryonic Galaxy Halos, – Galapagos Islands, Ecuador March 2017

*The Information Content of Stellar Halos: Accretion Histories and Stellar Population Gradients in Quiescent Illustris Galaxies*

228th Meeting of the AAS, #202.01 – San Diego, CA

June 2016

*The Information Content of Stellar Halos: Accretion Histories and Stellar Population Gradients in Quiescent Illustris Galaxies*

IAU Symposium 317, #2246021 – Honolulu, HI

August 2015

*Stellar Populations of Stellar Halos: Results from the Illustris Simulation*

### Public Outreach Talks

New Hampshire Astronomical Society Meeting – Manchester, NH

May 2016

*Growing Galaxies in a Computer with the Illustris Simulated Universe*

### Posters

3rd Annual GMT Community Science Meeting – Pacific Grove, CA

October 2015

*Stellar Populations of Stellar Halos: Results from the Illustris Simulation*

IAU Symposium 317, #S317p.12 – Honolulu, HI

August 2015

*Stellar Populations of Stellar Halos: Results from the Illustris Simulation*

223rd Meeting of the AAS, #441.10 – Washington, DC

January 2014

*Magnetic Dynamos and X-ray Activity in Ultracool Dwarfs: Constraining the Role of Rotation*

### Chambliss Medal Winner

The 4th Tri-State Astronomy Conference at CUNY – New York

September 2013

*Magnetic Dynamos and X-ray Activity in Ultracool Dwarfs: Constraining the Role of Rotation*

## RESEARCH EXPERIENCE

Ph.D. Thesis Project (Harvard University)

Fall 2016 – present

Topic: Bayesian modeling of pixel color-magnitude distributions in semi-resolved galaxies

Advisor: Prof. Charlie Conroy

Research Exam Project (Harvard University)

Fall 2014 – Summer 2016

Topic: Stellar halos of early-type galaxies in hydrodynamical simulations

Advisor: Prof. Charlie Conroy

Senior Thesis (Princeton University)

Fall 2013 – Spring 2014

Topic: The cosmic distributions of baryons and dark matter

Advisor: Prof. Neta Bahcall

Astronomy REU (Harvard University)

Summer 2013

Topic: The X-ray activity/rotation relation in ultracool dwarfs

Advisors: Drs. Edo Berger and Peter Williams

Junior Research Paper (Princeton University)

Spring 2013

Topic: Type II quasars in the BOSS survey

Advisor: Prof. Michael Strauss

Junior Research Paper (Princeton University)

Fall 2012

Topic: Photometric analysis of asteroids with the HATNet survey

Advisor: Prof. Gáspár Bakos

Undergraduate Summer Research Program (Princeton University)

Summer 2012

Topic: Galactic luminosity and mass functions from simulations

Advisor: Dr. Renyue Cen

## TEACHING EXPERIENCE

Teaching Fellow, Harvard Astro 17

Fall 2016

Awarded Certificate of Teaching Excellence

Teaching Fellow, Harvard Astro 200

Fall 2015

Awarded Certificate of Teaching Excellence

Teaching Fellow, Harvard Astro 16  
Teaching Assistant, Princeton AST 204  
Teaching Assistant, Princeton AST 205

Spring 2015  
Spring 2013  
Fall 2012

## PROFESSIONAL AND OUTREACH ACTIVITIES

Mentor/Instructor, [Banneker Institute](#) Summer Program  
[ComSciCon](#) National Workshop  
Chair, Local Organizing Committee  
Leadership Committee  
Author/Peer-Editor, [Astrobites](#) astronomy blog  
Attendee, [AAS Astronomy Ambassadors](#) training workshop  
Volunteer, Peyton Observatory Public Observing Nights  
Junior Member, American Astronomical Society  
President, Society of Physics Students – Princeton Chapter

Summer 2016, Summer 2017  
2014 – Present  
2015 – Present  
2016 – Present  
2014 – 2016  
Jan. 2014  
2012 – 2014  
2012 – Present  
2012 – 2014

## COMPUTING SKILLS

Languages  
Python, CUDA, C, Java, Wolfram (Mathematica)  
Electronic Presentation  
 $\text{\LaTeX}$ , HTML, Jupyter (iPython) notebook  
Other Development Tools  
GPU acceleration, Bash, Git, Make, SLURM cluster manager