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].
2. Hamann, F., Zakamska, N.L., Ross, N., et al. 2016, "Extremely Red Quasars in BOSS", *MNRAS*, 464, 3431 [arXiv: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]
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]
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]

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 — Spring 2015
Teaching Assistant, Princeton AST 204 — Spring 2013
Teaching Assistant, Princeton AST 205 — Fall 2012

Professional and Outreach Activities

Mentor/Instructor, Banneker Institute Summer Program — Summer 2016, Summer 2017
ComSciCon National Workshop — 2014 – Present
- Chair, Local Organizing Committee — 2015 – Present
- Leadership Committee — 2016 – Present

Author/Peer-Editor, Astrobites astronomy blog — 2014 – 2016
Attendee, AAS Astronomy Ambassadors training workshop — Jan. 2014
Volunteer, Peyton Observatory Public Observing Nights — 2012 – 2014
Junior Member, American Astronomical Society — 2012 – Present
President, Society of Physics Students – Princeton Chapter — 2012 – 2014

Computing Skills

Languages
- Python, CUDA, C, Java, Wolfram (Mathematica)

Electronic Presentation
- LaTeX, HTML, Jupyter (iPython) notebook

Other Development Tools
- GPU acceleration, Bash, Git, Make, SLURM cluster manager