

## **Black Lives in Astronomy:**

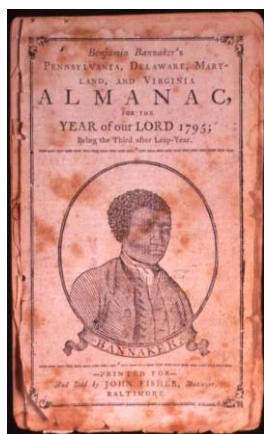
### **A Resource Guide**

Compiled by Andrew Fraknoi (*Fromm Institute, U. of San Francisco*)

July 2020

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This introductory guide is not a comprehensive listing, but merely an introduction, for students and their instructors, to the contributions and profiles of black astronomers, and to some of the issues facing them. Most of the entries are drawn from my *Astronomy of Many Cultures*: <http://bit.ly/astrocultures>



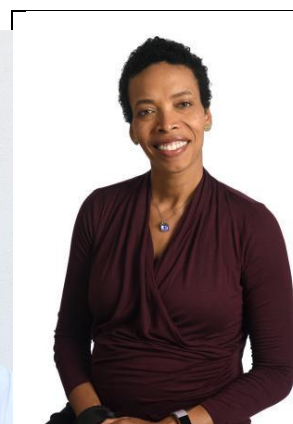
Banneker's Almanac



Neil deGrasse Tyson



Dara Norman



Aomawa Shields

### **Overview Materials About Black Astronomers**

Astronomy in Color blog: <http://astronomyincolor.blogspot.com/>

American Institute of Physics Center for the History of Physics: African-American Astronomers (a lesson plan with materials): <https://www.aip.org/history-programs/physics-history/teaching-guides-women-minorities/african-americans-astronomy-and-astrophysics>

Fikes, Robert "From Banneker to Best: Some Stellar Careers in Astronomy & Astrophysics" (on black astronomers): <http://www.math.buffalo.edu/mad/special/Black.Astronomers-Fikes.pdf>

Greene, Nick "African-Americans in Astronomy & Space (concise guide, links to brief bios): [http://space.about.com/od/astronomyspacehistory/tp/Black\\_History\\_Month.html](http://space.about.com/od/astronomyspacehistory/tp/Black_History_Month.html)

Reaching to the Stars: African American Astronomers (in celebration of Black History Month in 2011, Swarthmore hosted three African-American scientists: Derrick Pitts (Fels Planetarium), Eric Wilcots (U. of Wisconsin) and astronaut Mae Jemison, discussing the future of the field.) [90 min]: <http://www.youtube.com/watch?v=9q8I3bU68Gw>

Sokol, J. "Why the Universe Needs More Black and Latino Astronomers" (from *The Smithsonian*): <https://www.smithsonianmag.com/science-nature/how-can-we-give-black-and-latino-astronomers-foundation-reach-stars-180960213/>

Walker, Ashley: Black Astronomers You Should Know (A Twitter thread featuring introductions

to 53 young black scientists in fields related to astronomy):

<https://twitter.com/i/events/1101571329592119297>

Who are the Black Astronomers? (website with links):

<http://www.math.buffalo.edu/mad/physics/astronomy-peeps.html>

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## Some Black Astronomers Today

### *Gibor Basri*

Profile on *History Makers*: <http://www.thehistorymakers.com/biography/gibor-basri-41>

Brief Biography and Areas of Work: <https://astro.berkeley.edu/people/gibor-basri/>

News release on his selection as vice-chancellor of equity and inclusion:

[https://www.berkeley.edu/news/media/releases/2007/07/19\\_basri.shtml](https://www.berkeley.edu/news/media/releases/2007/07/19_basri.shtml)

His talk on brown dwarfs in the Silicon Valley Astronomy Lectures:

<https://www.youtube.com/watch?v=zXCDSb4n4KU>

### *Jason Best*

Profile (2011) on *Mountain State Science*: <https://www.youtube.com/watch?v=jQ992p9G7hA>

His page at Shepherd University: <https://www.sheperdu.com/jbest/>

Reflections on being an American Council on Education Fellow:

<https://www.shepherd.edu/news/best-found-yearlong-fellowship-illuminating/>

### *George Carruthers*

George Carruthers on *Biography*: <https://www.biography.com/inventor/george-carruthers>

National Medal of Technology: <https://www.nrl.navy.mil/news/releases/nrls-dr-george-carruthers-honored-national-medal-technology-and-innovation>

On *History Makers*: <http://www.thehistorymakers.com/biography/george-carruthers-41>

George Carruthers' Career on *Everyday Black History*:

<https://www.youtube.com/watch?v=7NK0aVLMxJE>

Short biography: <https://lemelson.mit.edu/resources/george-r-carruthers>

David DeVorkin's detailed talk on his life and work at:

<https://www.youtube.com/watch?v=RPqsTD0w0vk> )

### *Louise Edwards*

Interview on "Astronomy in Color": <http://astronomyincolor.blogspot.com/2016/04/faculty-highlight-dr-louise-edwards.html>

On "Everybody Has a Story": <https://www.youtube.com/watch?v=CGxRr-lkVis>

Interview at VanguardStem: <https://conversations.vanguardstem.com/wcwinstem-louise-edwards-ph-d-de1450681963>

Her page at Cal Poly: <https://physics.calpoly.edu/ledwar04>

### *Aaron Evans*

Page at the U. of Virginia: <http://people.virginia.edu/~ae3f/>

Public lecture on "Galaxy Collisions" at STScI:

<https://cloudproject.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=1289da3c-1e1e-4403-a92c-a995003df76f>

Story about him from the JMU *Breeze*: [https://www.breezejmu.org/news/aaron-evans-gives-public-astronomy-talk/article\\_28f20af4-4cfe-11e4-a2e0-001a4bcf6878.html](https://www.breezejmu.org/news/aaron-evans-gives-public-astronomy-talk/article_28f20af4-4cfe-11e4-a2e0-001a4bcf6878.html)

### *Jarita Holbrook*

A Guiding Star (nice profile of her life and work):

[http://sciencecareers.sciencemag.org/career\\_magazine/previous\\_issues/articles/2007\\_06\\_01/caredit.a0700079](http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2007_06_01/caredit.a0700079)

TED talk on cultural astronomy & religion: <https://www.youtube.com/watch?v=tWEsrbzV6wI>  
Holbrook, J. “Survival Strategies for African-American Astronomers and Astrophysicists” (six strategies gathered from interviews): <http://arxiv.org/pdf/1204.0247>

Brief Bio at AAAS: <https://www.nsf.gov/od/oia/activities/aaasfellows/bios/Holbrook.pdf>  
(another at: <https://www.nsbp.org/nsbp-news/bhm-physics-profiles/2018-honorees/95-jarita-holbrook> )

Science Tourist: Washington DC (she and her family explore the nation’s capitol):

<https://www.youtube.com/watch?v=tiP4a0f0SRQ>

### *Jedidah Isler*

2016 Interview with Her: <https://bglh-marketplace.com/2015/09/meet-dr-jedidah-isler-the-first-black-woman-to-graduate-from-yale-with-a-phd-in-astronomy/>

British web page about her: <https://poc2.co.uk/2019/01/31/dr-jedidah-isler-astronomer/>

Her TED talk on her life story:

[https://www.ted.com/talks/jedidah\\_isler\\_the\\_untapped\\_genius\\_that\\_could\\_change\\_science\\_for\\_the\\_better](https://www.ted.com/talks/jedidah_isler_the_untapped_genius_that_could_change_science_for_the_better)

### *William Jackson*

William Jackson: <http://www.thehistorymakers.com/biography/william-jackson>

About his Walker Award: <https://lettersandscience.ucdavis.edu/blog/william-jackson-honored-research-and-mentoring>

His Wikipedia page: [https://en.wikipedia.org/wiki/William\\_M.\\_Jackson](https://en.wikipedia.org/wiki/William_M._Jackson)

Interview about his life and work:

[http://www.auburn.edu/cosam/departments/diversity/stemdonedifferently/blog\\_1.htm](http://www.auburn.edu/cosam/departments/diversity/stemdonedifferently/blog_1.htm)

### *John Asher Johnson*

His Wikipedia page: [https://en.wikipedia.org/wiki/John\\_Johnson\\_\(astronomer\)](https://en.wikipedia.org/wiki/John_Johnson_(astronomer))

Brief NASA profile: [https://www.nasa.gov/mission\\_pages/kepler/news/johnson20120216.html](https://www.nasa.gov/mission_pages/kepler/news/johnson20120216.html)

His personal blog: <http://mahalonottrash.blogspot.com/>

Interview with *Physics Today*: <https://physicstoday.scitation.org/doi/10.1063/pt.5.3041/full>

2-min NASA video where he discusses being an astronomer:

<https://www.youtube.com/watch?v=kbGestZ4KTA>

### *Charles McGruder*

Brief Biography: <https://www.nsbp.org/nsbp-news/bhm-physics-profiles/bhm-2020/676-charles-mcgruder>

News release about his work in S. Africa:

<https://wkunews.wordpress.com/2010/11/30/mcgruder-in-africa/>

About his work in Rwanda: [https://www.bgdailynews.com/clinton-lewis-daily-newscharles-mcgruder-an-astronomy-professor-at-western-kentucky-university-is-headed-to/article\\_7fd763ea-ecb0-5517-af95-1b3af13354ab.html](https://www.bgdailynews.com/clinton-lewis-daily-newscharles-mcgruder-an-astronomy-professor-at-western-kentucky-university-is-headed-to/article_7fd763ea-ecb0-5517-af95-1b3af13354ab.html)

### Moiya McTier

Graduate-student interview in 2019 at Columbia, focusing on her life and career:

<https://www.youtube.com/watch?v=lKK0FovJ3Dc>

Poignant interview on *Shades of the U.S.*: <https://www.youtube.com/watch?v=FSS8VOrrQFE> (it starts 26 minutes into the video)

Her science communication website: <https://www.moiyamctier.com/>

Mini-biography at NRAO: <https://public.nrao.edu/blogs/author/mmctier/>

2016 article about her in the *Harvard Gazette*:

<https://news.harvard.edu/gazette/story/2016/04/she-followed-her-star/>

### Christopher Moore

Interview with him when he won the Beth Brown Memorial Award:

<http://astronomyincolor.blogspot.com/2016/03/student-highlight-christopher-moore.html>

His website: <https://www.christophermoorephd.com/>

*Space Daily* story on his work with CubeSats:

[https://www.spacedaily.com/reports/CubeSats\\_prove\\_their\\_worth\\_for\\_scientific\\_missions\\_999.html](https://www.spacedaily.com/reports/CubeSats_prove_their_worth_for_scientific_missions_999.html)

### Greg Mosby

Greg Mosby: Interview on “Astronomy in Color”:

<http://astronomyincolor.blogspot.com/2016/05/gregory-mosby-phd-candidate-at.html>

His page at NASA Goddard: <https://science.gsfc.nasa.gov/sed/bio/gregory.mosby>

His own professional web page: <https://astrogregmosby.com/>

His 2018 talk at “Astronomy on Tap”: <https://www.youtube.com/watch?v=gpk6l17Q6Y0>

### Dara Norman

Her moving talk at the June 2020 American Astronomical Society meeting on “The Inclusion Revolution”: <https://www.youtube.com/watch?v=rQDzeDuCLLs>

Meet the Keynote Speaker feature from Astrobites (related to the above talk):

<https://astrobites.org/2020/05/25/meet-the-keynote-speakers-dara-norman/>

Her Wikipedia Page: [https://en.wikipedia.org/wiki/Dara\\_Norman](https://en.wikipedia.org/wiki/Dara_Norman)

Norman, Dara “Can Big Data Lead to an Inclusion Revolution” in *Astronomy Beat*, July 2018:

[https://astrosociety.org/file\\_download/inline/12faca89-b5f4-4e59-aa62-ce7ad5add47c](https://astrosociety.org/file_download/inline/12faca89-b5f4-4e59-aa62-ce7ad5add47c)

### Hakeem Oluseyi

Very nice profile of his life in *The Undefeated*:

<https://theundefeated.com/features/astrophysicist-and-hbcu-grad-hakeem-oluseyi-is-making-waves/>

Rise of a Gangsta Nerd: An Interview with Hakeem Oluseyi (about his life and work):

<http://blog.ted.com/2012/10/05/rise-of-a-gangsta-nerd-fellows-friday-with-hakeem-oluseyi/>

Profile at APS Physics: <https://www.aps.org/careers/physicists/profiles/oluseyi.cfm>

On *Star Search*: an autobiographical talk at the Chicago Humanities Festival in 2014 [56 min]:

<https://www.youtube.com/watch?v=GRhgNw1siUo>

### Derrick Pitts

Derrick Pitts: Chief Astronomers, Franklin Institution (interview):

<https://solarsystem.nasa.gov/people/1380/derrick-pitts/>

Pitts' page at My Black History: [http://www.myblackhistory.net/Derrick\\_Pitts.htm](http://www.myblackhistory.net/Derrick_Pitts.htm)

Interview with Derrick Pitts: <https://solarsystem.nasa.gov/people/1380/derrick-pitts/>

Story about him: <https://why.org/articles/franklin-institutes-derrick-pitts-visibility-matters-especially-in-science/> )

*History Makers* Profile: <http://www.thehistorymakers.com/biography/derrick-pitts>

Science Stories: Brief Interview: <https://www.fi.edu/science-stories/derrick-pitts>

### *Aomawa Shields*

Interview at *Astronomy in Color*: <http://astronomyincolor.blogspot.com/2016/09/faculty-highlight-aomawa-shields.html>

Her Wikipedia page: [https://en.wikipedia.org/wiki/Aomawa\\_Shields](https://en.wikipedia.org/wiki/Aomawa_Shields)

Her rich personal website: <https://variablestargirl.com/>

Her faculty website at UC Irvine: <https://faculty.sites.uci.edu/shields/>

Interview at University of California News:

<https://www.universityofcalifornia.edu/news/astrobiology-s-rising-star>

2015 TED Talk on Finding Other Planets:

[https://www.ted.com/talks/aomawa\\_shields\\_how\\_we\\_ll\\_find\\_life\\_on\\_other\\_planets](https://www.ted.com/talks/aomawa_shields_how_we_ll_find_life_on_other_planets)

She has started an organization called *Rising Stargirls* to encourage girls of all color and backgrounds to learn science through astronomy: <http://www.risingstargirls.org/>

Brief NOVA segment on her career path:

<https://www.facebook.com/watch/?v=253867345266434&t=13>

### *Neil DeGrasse Tyson*

Tyson, Neil deGrasse: 2004 Interview on the PBS *NOVA* website, covering not only astronomy but also his development as a scientist and facing racism:

<http://www.pbs.org/wgbh/nova/space/conversation-with-neil-tyson.html>

Tyson, Neil deGrasse: Reflections on the Color of My Skin:

<https://www.facebook.com/notes/neil-degrasse-tyson/reflections-on-the-color-of-my-skin/10158481422496613>

A Story about Race (Tyson reflects on cultural issues that arose during his college and graduate years) [12 min]: <https://www.youtube.com/watch?v=eQLtPWPqsjA>

Interview with life advice on the program *Impact Theory*:

<https://www.youtube.com/watch?v=JtahB1-MNvk>

His radio show/podcast *Star Talk*: <https://www.startalkradio.net/>

His talk on the nature of science & science denial:

<https://www.youtube.com/watch?v=XxpOyNDudPA>

Berne, Jennifer *Look Up with Me: Neil deGrasse Tyson: A Life Among the Stars*. 2019, Katherine Tegen Books. Biography for kids ages 4-8.

Krull, Katherine & Brewer, Paul *The Cosmic Journey of Neil deGrasse Tyson*. 2018, Crown. For children ages 4-8.

Tyson, Neil deGrasse *The Sky is Not the Limit: Adventures of an Urban Astrophysicist*. 2004, Prometheus. An autobiography, with a section discussing racism.

### *Ashley Walker*

Profile and Interview at *Scientific American*: <https://www.scientificamerican.com/article/black->

[astronomers-highlight-achievements-and-obstacles/](#)

Profile on Astrobites: <https://astrobites.org/2020/06/22/black-in-astro-ashley-walker/>

Interview about her project to highlight black astronomers:

<http://astronomyincolor.blogspot.com/2019/03/how-ashley-walker-shined-necessary.html>

Stories from the Youiverse: Her Reminiscences:

<https://www.facebook.com/watch/?v=522333735320103>

### Eric Wilcots

His page at the U. of Wisconsin: <http://www.astro.wisc.edu/our-people/faculty/wilcots> (See also: <https://ls.wisc.edu/about/wilcots>)

Story about his becoming Dean: [https://madison.com/wsj/news/local/education/university/uw-madison-picks-astronomer-to-lead-largest-academic-college/article\\_b17d7c31-134b-5787-a9d2-f5275ceb08f2.html](https://madison.com/wsj/news/local/education/university/uw-madison-picks-astronomer-to-lead-largest-academic-college/article_b17d7c31-134b-5787-a9d2-f5275ceb08f2.html)

Profile at Madison 365: <https://madison365.com/i-love-the-sense-of-discovery-dr-eric-wilcots-stays-focused-on-science-as-he-ascends-academic-ladder/>

Profile in *Madison Magazine*: <https://www.channel3000.com/madisons-own-star-gazer/>

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## **A Few Black Astronomers of the Past**

### Claudia Alexander

Interview on the Women in Planetary Science web site:

<http://womeninplanetaryscience.wordpress.com/2011/02/03/claudia-alexander-be-prepared-to-be-flexible-in-your-career/>

JPL video where she explains some of her work (3 min):

<https://www.jpl.nasa.gov/video/details.php?id=184>

Obituary in the *NY Times*: <https://www.nytimes.com/2015/07/20/us/claudia-alexander-nasa-manager-who-led-jupiter-mission-dies-at-56.html>

### Benjamin Banneker

Ferris, Jeri *What Are You Figuring Now: A Story about Benjamin Banneker*. 1988, Carolrhoda Books. Children's book about this 18<sup>th</sup> century black astronomer, mathematician, surveyor.

His detailed Wikipedia page: [https://en.wikipedia.org/wiki/Benjamin\\_Banneker](https://en.wikipedia.org/wiki/Benjamin_Banneker)

Biography at Khan Academy: <https://www.khanacademy.org/partner-content/big-history-project/expansion-interconnection/commerce-collective-learning/a/benjamin-banneker-science-in-adversity>

The Man Who Loved the Stars (a feature film about him with Ossie Davis):

<https://archive.org/details/themanwholovedthestarsreel2>

His page at the White House Historical Association:

<https://www.whitehousehistory.org/benjamin-banneker>

Baskes Litwin, Laura *Benjamin Banneker: Astronomer and Mathematician*. 1999, Enslow.

Bedini, Silvio *The Life of Benjamin Banneker: The First African-American Man of Science*, 2nd ed. 2009, Maryland Historical Society.

### Beth Brown

Profile at APS Physics: <https://www.aps.org/careers/physicists/profiles/brown.cfm>

Memorial Video Profile (in 2 parts): <https://www.youtube.com/watch?v=KfJMVDjf6dk> and <https://www.youtube.com/watch?v=qcvH6wFViCc>  
Obituary at the AAS Website: <https://ui.adsabs.harvard.edu/abs/2011BAAS...43..004B/abstract>  
About the Beth Brown Memorial Award: <https://aas.org/grants-and-prizes/beth-brown-memorial-award>

### Benjamin Peery

Obituary from the Bulletin of AAS:  
<https://ui.adsabs.harvard.edu/abs/2011BAAS...43..028C/abstract>  
1992 Profile in the *Washington Post*:  
<https://www.washingtonpost.com/archive/entertainment/books/1992/08/02/astronomer-in-the-classroom/2cebfa4-0f5a-4225-88f8-1114f9a74621/>  
His oral history interview with David DeVorkin: <https://www.aip.org/history-programs/niels-bohr-library/oral-histories/33698>

### Mercedes Richards

Eshleman, Adams “Mercedes Richards: Stellar Detective” (Penn State University news story 2009): <http://news.psu.edu/story/141653/2009/08/05/research/stellar-detective-profile-professor-mercedes-richards>  
2013 Profile for APS: [https://www.eurekalert.org/pub\\_releases/2013-07/ps-amr071513.php](https://www.eurekalert.org/pub_releases/2013-07/ps-amr071513.php)  
Her Wikipedia page: [https://en.wikipedia.org/wiki/Mercedes\\_Richards](https://en.wikipedia.org/wiki/Mercedes_Richards)  
Profile at *Putting People of Colour into the Equation*: <https://poc2.co.uk/2018/12/14/prof-mercedes-t-richards-stellar-astronomer/>

### Arthur Walker

2000 Article from *Stanford Report*: “Art Walker: Favorite ‘Sun’ of Solar Physics”:  
<https://news.stanford.edu/news/2000/october4/walkerprofile-104.html>  
His entry at *Physicists of the African Diaspora* (with a wonderful tribute by H. Oluseyi):  
[http://www.math.buffalo.edu/mad/physics/walker\\_arthurbc.html#Scholar,%20Warrior,%20Citizen](http://www.math.buffalo.edu/mad/physics/walker_arthurbc.html#Scholar,%20Warrior,%20Citizen)  
Post at *Sky & Telescope* website: <https://skyandtelescope.org/astronomy-resources/famous-astronomers/arthur-b-c-walker-ii-x-ray-astronomer/>  
Obituary by Vahe Petrosian: <https://aasjournals.github.io/aas-obits-mirror/arthur-b-c-walker-1936-2001.html>  
Shore, L. “Celebrating Diversity: The Arthur Walker Award of the ASP” (an award for contributions by African-American or other African diaspora astronomers):  
[https://astrosociety.org/file\\_download/inline/f9fc1f62-848b-438d-8ea5-653f8f877528](https://astrosociety.org/file_download/inline/f9fc1f62-848b-438d-8ea5-653f8f877528)

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## **How We Can Support Black Astronomers**

Astrobites: How can we Support Black Astronomers? (June 2020):  
<https://astrobites.org/2020/06/03/how-can-we-support-black-astronomers/>  
DPS/AAS Actionable Steps to Make our Community More Equitable:  
<https://dps.aas.org/inclusivity/actionable-steps>

*The Time is Now: Systemic Changes to Increase the Number of Africa-Americans with Bachelor's Degrees in Physics and Astronomy* (from the American Institute of Physics, 2020): <https://www.aip.org/sites/default/files/aipcorp/files/teamup-full-report.pdf>

Black Lives Resources from the American Astronomical Society: <https://aas.org/strike4blacklives>

Final Report of the 2018 American Astronomical Society Task Force on Diversity and Inclusion in Astronomy Graduate Education:  
[https://aasarchives.blob.core.windows.net/files/aas\\_diversity\\_and\\_inclusion\\_task\\_force\\_final\\_report.pdf](https://aasarchives.blob.core.windows.net/files/aas_diversity_and_inclusion_task_force_final_report.pdf)

AstroBetter: Equal Opportunity Astronomy: Articles & Resources:  
<https://www.astrobetter.com/wiki/Diversity>

*Astronomy in Color* blog on “Justice and Equity for Black People”:  
<http://astronomyincolor.blogspot.com/2020/06/justice-and-equity-for-black-people-in.html>

Inclusive Astronomy Conference 2015 Recommendations:  
<https://docs.google.com/document/d/1JipEb7xz7kAh8SH4wsG59CHEaAJSJTAWRfVA1MfYGM8/edit>

Article on the black astronomer experience on Inverse: <https://www.inverse.com/science/black-astronomers-experience>

Norman, Dara, et al. “Increasing the Number of Underrepresented Minorities in Astronomy” (a 2009 position paper for the decadal survey): <https://arxiv.org/ftp/arxiv/papers/0903/0903.4506.pdf>

Norman, Dara “Expanding Diversity in Professional Astronomy” in *Sky & Telescope*, Feb. 2010, p 86. A powerful editorial on what needs to be done.

Rudolph, A. “Cal-Bridge: Creating Pathways to PhD for Underrepresented Students in Physics and Astronomy” in *Physics Today*, Oct. 2019: <https://physicstoday.scitation.org/doi/10.1063/PT.3.4319>

Stassun, Keivan “Enhancing Diversity in Astronomy: Minority-Serving Institutions and REU Programs (a white paper on strategies and recommended actions):  
<https://linode.aas.org/archives/BAAS/v35n5/stassun.pdf>

Committee on the Status of Minorities (AAS) Web site: <http://csma.aas.org/> Discussions of and resources about minority issues in the training of professional astronomers in the U.S. See, in particular, their very useful blog: <http://astronomyincolor.blogspot.com/>

Division for Planetary Science Professional Culture and Climate Subcommittee Reading List:  
<https://dps.aas.org/pccs-reading-list>

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Ben Peery



Moiya McTier



Gibor Basri



Louise Edwards