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## KATHRYN A. FLANAGAN

Space Telescope Science Institute  
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### WORK EXPERIENCE

#### Space Telescope Science Institute (2007 - present)

2015 – 2015 Interim Director of STScI, Senior Scientist  
2012 - 2015 Deputy Director of STScI, Senior Scientist  
2007 - 2012 JWST Mission Head, Senior Scientist

#### Massachusetts Institute of Technology (1995 - 2007)

2005 - 2007 Principal Research Scientist  
1999 - 2006 Director of Education and Public Outreach, MIT Kavli Institute  
2003 - 2005 Constellation-X Reflection Grating Spectrometer Integrated Product Team Leader  
1995 - 2007 Chandra X-Ray Observatory High Energy Transmission Grating Instrument Team

#### Harvard-Smithsonian Center for Astrophysics (1990 - 1995)

1991 - 1995 Chandra High Resolution Camera Instrument Team  
1990 - 1991 X-Ray Detection System Scientist, Chandra Mission Support Team

### EDUCATION

Ph.D., Physics (1990), Massachusetts Institute of Technology  
Thesis: *Plasma Diagnostics with X-Ray Emission Lines of Puppis A*  
Thesis advisor: Prof. Claude Canizares

M.S., Physics (1984), New York University  
Thesis: *Kinematics of IC1396*  
Thesis advisor: Prof. Patrick Huggins

B.S., Physics (1976), Massachusetts Institute of Technology  
Thesis: *Investigations of a Seven Wire Imaging Proportional Counter*  
Thesis Advisor: Prof. Claude Canizares

### PROFESSIONAL ACTIVITIES AND COMMUNITY SERVICE

#### NASA COMMITTEES

2010 NASA Astrophysics Division's Senior Review of Operating Missions  
2006 - 2010 NASA Advisory Council Astrophysics Subcommittee  
2005 - 2006 JWST Science Assessment Team  
2005 Co-chair, NASA Strategic Roadmap for Universe Exploration  
2004 - 2006 Co-chair, NASA Astrophysics Roadmap (Science Program)  
2001 - 2005 NASA Structure and Evolution of the Universe Subcommittee (SEUS)  
2002 Invited participant, NASA Office of Space Science Strategic Planning Workshop  
2002 Beyond Einstein Roadmap team, chair of R&A subgroup  
2001- 2004 Deputy Chair, NASA Astronomy and Physics Working Group  
2000 - 2001 NASA UV/Optical Detectors Working Group  
1993 -1997 AXAF User's Committee  
Peer reviewer for NASA proposals (observing, technology, fellowship and explorer missions)

#### CONFERENCE ORGANIZING AND JOURNAL EDITING

2011 - 2012 Co-editor of *Space Telescopes*, Optical Engineering, Vol 51, Issue 1 (2012)  
2011 - 2012 Symposium co-chair, 2012 SPIE Astronomical Telescopes and Instrumentation  
2009 - 2010 Symposium co-chair, 2010 SPIE Astronomical Telescopes and Instrumentation

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- 2007 - 2008 Co-chair and editor, *Space Telescopes and Instrumentation II: Ultraviolet to Gamma Ray*, SPIE 2008  
2007 Science Organizing Committee, *Eight Years of science with Chandra*  
2004 Science Organizing Committee, “*Beyond Einstein: From the Big Bang to Black Holes*”, Kavli Institute for Particle Astrophysics and Cosmology  
1999 - 2003 SPIE Conference Organizer and Proceedings Editor, *X-Ray and Gamma-Ray Missions and Instrumentation for Astronomy X, XI, XII, XIII*  
1995 - 2000 SPIE Program Committee

#### **OBSERVATORY, MISSION & MISSION CONCEPT PARTICIPATION**

- 2013 – 2016 Laser Interferometer Gravitational-Wave Observatory (LIGO) Program Advisory Committee  
2014 Arecibo Observatory Mid-term Management Review panel  
2007 - 2015 James Webb Space Telescope Science Working Group  
2009 WFXT mission team co-investigator  
2008 - 2011 International X-Ray Observatory (IXO) Science Coordination Group  
2008 Generation-X Vision Mission Study and Advanced Mission Concept  
2007 - 2008 Micro-X Rocket proposal team  
2003 - 2008 Constellation-X Facility Science Team  
Named co-investigator or collaborator in SMEX, MIDEX, Chandra GO, XMM GO, ROSS (Lab Astro) and NSF Proposals  
Invited “outside” reviewer for FUSE detector and Spectrum-X Gamma mission Critical Design Reviews  
Primary roles as JWST mission head, Constellation-X IPT leader, Chandra Instrument Scientist on HRC and HETG teams

#### **EDUCATION AND OUTREACH**

- 2010 – 2011 Board member for Maryland Science Education and Exploration Center  
1999 - 2007 Coalition Board, Project Astro (Boston site)  
2002 - 2004 Math and Science Advisory Council, Massachusetts Department of Education  
Participant in outreach, including special emphasis on women and minorities

#### **OTHER SERVICE ACTIVITIES**

- 2016 Chair-elect of Section on Astronomy, American Association for Advancement of Science (AAAS)  
2015-2016 American Astronomical Society (AAS) Committee on Astronomy and Public Policy (CAPP)  
2009 – 2011 AAS Committee: Joseph Weber Award for Astronomical Instrumentation (Chair 2010)  
2009 - 2010 National Academy of Sciences Astronomy and Astrophysics Decadal Survey (Astro2010): Program Prioritization Panel on Particle Astrophysics and Gravitation  
2007 MIT Kavli Institute Strategic Planning Committee  
2003 - 2005 Executive Committee, High Energy Astrophysics Division of AAS (elected office)  
Peer reviewer for astronomical and engineering journals

#### **HONORS/AWARDS**

- NASA Group Achievement Award, James Webb Space Telescope PDR (2008)  
NASA Group Achievement Award, Chandra Science Team (2000)  
NASA Group Achievement Award, Chandra Science Instrument and Operations Team (2000)  
MIT School of Science “Infinite Mile” Award (2001)  
NASA Group Achievement Award, AXAF VETA Test Team (1992)

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## PROFESSIONAL MEMBERSHIPS

American Astronomical Society (AAS)  
International Astronomical Union (IAU)  
Society of Photo-Optical Instrumentation Engineers (SPIE)  
Women in Aerospace (WIA)  
National Society of Black Physicists (NSBP)  
American Association for the Advancement of Science (AAAS)

## SELECTED INVITED TALKS

Conference for Undergraduate Women in Physics (CUWiP), Old Dominion University/Jefferson Lab, *Big Dreams – the James Webb Space Telescope and Beyond*, Jan 2016

Students for the Exploration and Development of Space (SEDS) SpaceVision 2015, *The High Definition Space Telescope: Addressing the Question Are We Alone?*, Nov 2015

Society of Physics Students Evening of Undergraduate Science, *Astronomy as a Personal Endeavor: What does this Astrophysicist do?*, Jan 2014

Arizona State University School of Earth and Space Exploration, *Exploring Planets with Hubble and James Webb Space Telescope*, Feb 2014

NRC & Space Studies Board Workshop, “Sharing the Adventure with the Student: Exploring the Intersections of NASA Space Science and Education”, panel on *Collaboration among NASA SMD and K-12 Districts, Schools and Teachers*, Dec, 2014

AAS Plenary Session: *Interesting Careers in Aerospace and Mission Operations*, AAS Jan 2013

AAS HEAD Special Session: 50 Years of Celestial X-Ray Astronomy, *The Chandra XRCF Experience – A Personal Recollection*, AAS Jan 2013

Frontier Science Opportunities with the James Webb Space Telescope, *STScI’s Role*, June 7, 2011

The A.I. Mahan Colloquium, Johns Hopkins University Applied Physics Laboratory, *The James Webb Space Telescope: We Can See the Beginning*, December 10, 2010

Maryland Space Business Roundtable, *JWST: We can see the beginning*, 27 July 2010

AAS Committee on Astronomy and Public Policy, Special Session on International Collaborations, May 25, 2010

Developing Sustainable Human Space Exploration Policy Workshop, *Decadal Study Process*, Dec 8, 2009

*Heirs of Galileo: Frontiers of Astronomy* International Symposium (organized by Spanish Royal Academy and Ramon Areces Foundation), *JWST – A window to the Past*, October 19, 2009

Princeton University Department of Mechanical and Aerospace Engineering, *Spectroscopy on the Chandra X-Ray Observatory and out into the future: we put the “fizz” in astrophysics*, December 5, 2008

McDonnell Lecture, Washington University, *James Webb Space telescope: A Window to the Past*, March 27, 2008 (prize lecture)

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Sixth Integral Workshop: The Obscured Universe, *A Chandra Update: chemical composition and shock structure in supernova remnants*, July 2006

## SELECTED PUBLICATIONS

R.C. Bohlin, *et al.*, "Absolute Flux Calibration of the IRAC Instrument on the Spitzer Space Telescope using Hubble Space Telescope Flux Standards," *AJ*, vol 141, issue 5, 2011

X. Barcons, *et al.*, "International X-ray Observatory (IXO) Assessment Study Report for the ESA Cosmic Vision 2015-2025", eprint arXiv:1102.2845, 2011

Monique Arnaud, *et al.*, "XEUS: the physics of the hot evolving universe", *Experimental Astronomy*, Volume 23, Issue 1, pp.139-168, 2009

Julia C. Lee, *et al.*, "Condensed Matter Astrophysics: A Prescription for Determining the Species-Specific Composition and Quantity of Interstellar Dust using X-rays", *ApJ* vol 702, issue 2, pp. 970-979, 2009

E. Figueroa-Feliciano, *et al.*, "Progress on the Micro-X rocket payload", *Space Telescopes and Instrumentation 2008: Ultraviolet to Gamma Ray*, eds. Martin J.L. Turner and Kathryn A. Flanagan, *Proceedings of the SPIE* Vol. 7011, p. 70113U, 2008

Stephen S. Murray, *et al.*, "Wide field x-ray telescope mission", *Space Telescopes and Instrumentation 2008: Ultraviolet to Gamma Ray*, eds. Martin J.L. Turner and Kathryn A. Flanagan, *Proceedings of the SPIE* Vol. 7011, p. 70111J, 2007

K. Flanagan, *et al.*, "Spectrometer concept and design for X-ray astronomy using a blazed transmission grating", *SPIE* Volume 6688, "Optics for EUV, X-Ray and Gamma-Ray Astronomy III", O'Dell and Pareschi, eds., p.66880Y, 2007

U. Hwang, R. Petre and K. Flanagan, "X-Ray Emitting Ejecta in Puppis A Observed with Suzaku", *ApJ*. Vol 676, Issue 1, p. 378, 2008

K. A. Flanagan, "A Chandra update: chemical composition and shock structure in supernova remnants", *Proceedings of the 6th INTEGRAL Workshop, The Obscured Universe*, Space Research Institute (IKI), Moscow, Russia, July 2-8, 2006, *ESA Special Publication SP-622*, eds S. Grebenev, R. Sunyaev and C. Winkler, p. 83, 2007

J.F. Seely, *et al.*, "Efficiency of a Grazing Incidence Off-Plane Grating in the Soft X-Ray Region", *Applied Optics*, Vol.45, No. 8, 2006

Cottam, J., *et al.*, "The Constellation-X Reflection Grating Spectrometer", *Proc. SPIE*, vol. 6266 (2006).

U. Hwang, K. Flanagan, and R. Petre, "Chandra X-Ray Observation of a Mature Cloud-Shock Interaction in the Bright Eastern Knot Region of Puppis A", *ApJ* 635, pp. 355-364, 2005

C.R. Canizares, *et al.*, "The Chandra High-Energy Transmission Grating: Design, Fabrication, Ground Calibration and 5 Years in Flight", *PASP*, vol. 117, issue 836, pp. 1144-1171, 2005

K.A. Flanagan, *et al.*, "The Constellation-X RGS options: raytrace modeling of the off-plane gratings", *SPIE* vol. 5488, pp. 515-529, 2004

K.A. Flanagan, *et al.*, "Chandra High-Resolution Spectrum of Supernova Remnant 1E0102.2-7219", *ApJ*, 605, pp. 230-246, 2004

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U. Hwang, *et al.*, "A Million Second Chandra View of Cassiopeia A", *ApJL*, 615, 117, 2004

P.M. Woods, *et al.*, "Changes in the X-ray Emission from the Magnetar Candidate 1E 2259+586 during its 2002 Outburst", *ApJ*, 605, 378-399 2003

K.A. Flanagan, *et al.*, "Probing the Cosmic X-Ray Laboratory with the Chandra HETGS", *SPIE* vol 4851, X-Ray and Gamma-Ray Telescopes and Instruments for Astronomy, eds. Truemper and Tananbaum, p.45, 2002

K.A. Flanagan, *et al.*, "Ionization Structure and the Reverse Shock in E0102-72", *Young Supernova Remnants: Proceedings of the 11th Astrophysics Conference in Maryland*, S.S. Holt and U. Hwang eds., p. 226, 2001

D. S. Davis, *et al.*, "Spectral Line Imaging Observations of 1E0102.2-7219", *Young Supernova Remnants: Proceedings of the 11th Astrophysics Conference in Maryland*, S.S. Holt and U. Hwang eds., p. 230, 2001

C.R. Canizares, *et al.*, "High Resolution Spectroscopy of Two Oxygen-Rich SNRs with the Chandra HETG", *Young Supernova Remnants: Proceedings of the 11th Astrophysics Conference in Maryland*, S.S. Holt and U. Hwang eds. p.213, 2001

K.A. Flanagan, *et al.*, "Ionization and Velocity Structure in the Supernova remnant E0102-72", *X-Ray Astronomy 2000*, ASP Conference Proceedings Vol. 234, Serio and Giacconi eds. 2001

## **OTHER INFORMATION**

Peace Corps Volunteer, Republic of Zaire (Democratic Republic of Congo) 1976-1978.

Taught math and physics

Languages studied: French, German, Japanese, Lingala, Swahili