

Curriculum Vitae

CHRISTOPHER STEPHEN REYNOLDS

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General information

Current positions/roles

7/2023– *Professor*, Dept. of Astronomy, Univ. of Maryland, College Park, MD, USA

7/2023– *Director*, Joint Space Science Institute (JSI), Univ. of Maryland

Previous positions/roles

Employment :

9/2017–6/2023 *Plumian Professor of Astronomy*, University of Cambridge

10/2018 –6/2023 *Fellow*, Sidney Sussex College, University of Cambridge

10/2018 –9/2022 *Deputy Director*, Institute of Astronomy, University of Cambridge

7/2009–8/2017 *Professor*, Dept. of Astronomy, Univ. of Maryland, College Park, MD, USA

7/2005–6/2009 *Associate Professor*, Dept. of Astronomy, Univ. of Maryland

8/2001–6/2005 *Assistant Professor*, Dept. of Astronomy, Univ. of Maryland

8/1998–7/2001 *Senior Research Associate & Hubble Fellow*, JILA, Univ. of Colorado, Boulder, CO, USA

10/1996–7/1998 *Postdoctoral Research Associate*, JILA, Univ. of Colorado

Other roles :

8/2013–8/2014 *Director*, Astronomy Center for Theory and Computation, Univ. of Maryland

8/2012–8/2014 Faculty Senator, Univ. of Maryland

3/2010–8/2013 *Director*, Joint Space Science Institute (JSI), Univ. of Maryland

8/2008–8/2009 *Director*, Astronomy Center for Theory and Computation, Univ. of Maryland

Selected honours and awards

2019–2024 ERC Advanced Grant (project DISKtoHALO)

2019 NASA Group Achievement Award (for the *Lynx* project)

2014–2015 Simons Fellow in Theoretical Physics

2013 Hintze Lecturer (Univ. of Oxford)

2012 Biermann Lecturer (Max Planck Institute for Astrophysics, Garching, Germany)

2005 Helen B. Warner Prize (top early-career award from American Astronomical Society)

1998–2001 Hubble Fellowship (NASA)

1993 Tyson Medal for top astrophysics performance in Part III Maths (Univ. of Cambridge)

Education

10/1993–9/1996 *Ph.D.*, Institute of Astronomy, Univ. of Cambridge

1/1996 *Master of Arts*, Trinity College, Univ. of Cambridge

10/1992–6/1993 *Certificate of Advanced Study in Mathematics* ("Part III Maths"), Univ. of Cambridge

10/1989–6/1992 *B.A. (Theoretical Physics)*, Trinity College, Univ. of Cambridge

Research Profile

Reynolds leads a research group focused on the astrophysics of black holes and related high-energy processes. Specific current interests include (i) the imprints of strong gravity on X-ray spectral and timing data and subsequent constraints on black hole spin; (ii) observational constraints and theoretical models for winds from AGN; (iii) the theory of black hole accretion, connecting the modern MHD-turbulence paradigm for accretion disks to observables; (iv) observational constraints on AGN feedback in massive galaxies and galaxy clusters; (v) theoretical models of AGN feedback and the relevant plasma physics of the intracluster medium, (vi) astrophysical probes of particle physics beyond the Standard Model (particularly constraints on axion-like particles), (vii) development of future X-ray observatories.

Throughout his career, Reynolds has integrated students of all levels (undergraduate, masters, and PhD) as well as early career postdoctoral researchers into his research group. To date, he has mentored 13 PhD students through to graduation, with another 4 PhD students currently working with him in Cambridge. He has been the primary research advisor for 19 early career postdoctoral research associates and fellows.

Publications

Reynolds has authored or co-authored 343 published peer-reviewed papers. Please click [here](#) for a full current publication list (via the NASA Abstract Data Service) or see attached document. As of 26-September-2023, his published works have been cited 27,000 times in the scientific literature (leading to an *h*-index of 83).

Research Funding

During his 22 years working in the US, Reynolds secured US\$5.3M of Federal funding across 45 separate research awards from NASA and the National Science Foundation. (numbers do not include the Federally-funded independent graduate and postdoctoral fellowships for which he acted as host). Since starting at the University of Cambridge, he has been awarded GB£400k from the UK Government Science and Technology Facilities Council (STFC) to support his theoretical work on accretion disks as part of the IoA Consolidated Grant. In 2019, he was awarded an Advanced grant (2.5M euros) from the European Research Council to support a suite of projects focused on AGN feedback. He has recently become Principal Investigator of the Advanced X-ray Imaging Satellite (AXIS), a response to the NASA call for probe-class (\$1B) observatories.

Major collaborations

2022–present	Principal Investigator, Advanced X-ray Imaging Satellite (AXIS)
2016–2021	Member of Advanced X-ray Imaging Satellite (AXIS) Science Team
2018–present	Member of NASA HelioSwarm team (focused on turbulence in solar wind plasma)
2016–2020	Member of NASA/Lynx Science and Technology Definition Team
2015–2019	“NASA-Nominated” Member of <i>Athena</i> Science Team
2013–2015	Member of NASA/NuSTAR Science Team
2009–2016	“NASA Selected Science Advisor” for the NASA/JAXA <i>Astro-H/Hitomi</i> mission
2002–2010	Member of NASA/Swift Science Team
1998–2009	Member of NASA <i>Constellation-X/International X-ray Observatory</i> Science Team

Significant Community Committee Service

Reynolds has served on a number of oversight and strategic planning committees, as well as held elected office within the High-Energy Astrophysics Division (HEAD) of the American Astronomical Society (AAS). Highlights include:

2020–present	Co-Chair <i>Athena</i> /ESA Topical Panel on “Physics Beyond the Standard Model”
2019–present	Scientific Advisory Board (Fachbeirat) for Max Planck Institute for Astrophysics, Garching.
2018–2020	Past Chair of HEAD/AAS
2016–2018	Chair of HEAD/AAS
2014–2016	Vice Chair of HEAD/AAS
2013	NASA Astrophysics 30-year Roadmapping Task Force
2009–2010	Astro-2010 (“Decadal Survey”) Science Frontier Panel on “Galaxies Across Cosmic Time”
2006–2008	Elected Member of the HEAD/AAS Executive Committee
2003–2008	NASA/Chandra Users Committee (Program Oversight; Chair from 2006–2008)
1997–2020	Served on approximately 30 NSF and NASA proposal/grant review panels

Organization of scientific meetings

Reynolds has served on the Scientific Organizing Committee (SOC) or Local Organizing Committee (LOC) for over 30 international science conferences and symposia. He chaired or co-chaired the following meetings:

2017	Chair of SOC for 16th HEAD/AAS Meeting, Sun Valley, Idaho, USA
2016	Chair of SOC for 15th HEAD/AAS Meeting, Naples, Florida, USA
2015	Chair of SOC for Annual JSI Conference “SMBH Formation and Feedback”, Annapolis, MD, USA
2013	Chair of SOC for Annual JSI Conference “Putting Accretion Theory to the Test”, Annapolis, MD, USA
2012	Chair of LOC for “Energetic Astronomy”, Annapolis, MD, USA
2011	Co-Chair of SOC for Annual JSI Conference “Near Field Cosmology”, Annapolis, MD, USA
2010	Co-Chair of SOC for Annual JSI Conference “Ins and Outs of Black Holes”, Annapolis, MD, USA
2008	Chair of SOC for “Putting Gravity to Work: From Black Holes to Galaxy Clusters”, Cambridge, UK
2004	Chair of SOC for mini-workshop on “Black Hole Science with Con-X”, NASA-Goddard, MD, USA

Peer Review

Reynolds is a regular reviewer of papers for the major astrophysics research journals including *Astronomy & Astrophysics*, *The Astrophysical Journal*, *Astrophysical Journal Letters*, *Monthly Notices of the Royal Astronomical Society*, *Nature*, *Physical Review Letters*, and *Science*. He also has served on approximately 1–2 in-person proposal review panels per year (most commonly for NASA and the National Science Foundation).

Significant Research Outreach Activities in the UK

2019	Hay Festival, Hay-on-Wye, public talk on "Unravelling the Mysteries of Black Holes"
2019	Cambridge Science Festival, public talk on "The Universe of Black Holes"