

Carrie E. Holt

LSST-DA Catalyst Postdoctoral Fellow

cholt@lco.global

Pronouns: she/her/hers

ORCID: 0000-0002-4043-6445

Citizenship: USA

EDUCATION

Ph.D. in Astronomy

University of Maryland

“A Song of Fire & Ice: Evolutionary Properties of Hot & Cold Small Bodies”

Advisors: Prof. Matthew Knight (USNA) & Prof. Derek Richardson

Jul 2023

College Park, MD

M.S. in Astronomy

University of Maryland

*“Continuous Monitoring of Spatial Variations in 103P/Hartley 2’s
Volatiles from Deep Impact”*

Advisors: Prof. Jessica Sunshine & Dr. Lori Feaga

Dec 2018

College Park, MD

B.S. in Physics

Wagner College

Magna Cum Laude with Honors

May 2014

Staten Island, NY

PROFESSIONAL EXPERIENCE

LSST-DA Catalyst Postdoctoral Fellow

Las Cumbres Observatory

Oct 2023 – present

Goleta, CA

Graduate Research Assistant

Dept of Astronomy, University of Maryland

Aug 2016 – Sep 2023

College Park, MD

Graduate Teaching Assistant

Dept of Astronomy, University of Maryland

Aug 2016 – May 2022

College Park, MD

Faculty Specialist

Dept of Astronomy, University of Maryland

Sep 2015 – Aug 2016

College Park, MD

NASA Summer Intern

NASA Goddard Space Flight Center

Jun 2013 – Aug 2013

Greenbelt, MD

PUBLICATIONS

- [11] *Brightness Behavior of Distant Oort Cloud Comets.*
Holt, C.E., Knight, M.M., Kelley, M.S.P., Lister, T., et al. 2024. [PSJ, 5, 12](#)
- [10] *The Volatile Composition and Activity Evolution of Main-Belt Comet 358P/PANSTARRS.*
Hsieh, H., et al. (including **Holt, C.E.**), 2024. [PSJ, submitted](#)
- [9] *Analysis of the Cometary Outburst by the Centaur-like Jupiter-Family Comet 2023 RN3.*
Dobson, M. M., et al. (including **Holt, C.E.**), 2024. [PSJ, 168, 6](#)
- [8] *The Comet Interceptor Mission.*
Jones, G. H., et al. (including **Holt, C.**), 2024. [Space Science Reviews, 22, 9](#)
- [7] *Photometry of the Didymos system across the DART impact apparition.*
Moskovitz, N., et al. (including **Holt, C.**), 2023. [PSJ, 5, 2](#)

- [6] *Orbital Period Change of Dimorphos Due to the DART Kinetic Impact.*
Thomas, C.A., et al. (including **Holt, C.E.**), 2023. [Nature](#), **616**
- [5] *Surface Properties of Near-Sun Asteroids.*
Holt, C.E., Knight, M.M., Kelley, M.S.P., Ye, Q., Hsieh, H., et al., 2022. [PSJ](#), **3**, 8
- [4] *The LCO Outbursting Objects Key Project: Overview and Year 1 Status.*
Lister, T., Kelley, M.S.P., **Holt, C.E.**, et al. 2022. [PSJ](#), **3**, 7
- [3] *Distant Outbursts of Comet C/2014 UN₂₇₁ (Bernardinelli-Bernstein)*
Kelley, M.S.P., Kokotanekova, R., **Holt, C.E.**, Protopapa, S., Lister, T., et al. 2022. [ApJL](#), **933**, L44
- [2] *Recovery of Returning Halley-Type Comet 12P/Pons-Brooks With the Lowell Discovery Telescope.*
Ye, Q., Farnham, T.L., Knight, M.M., **Holt, C.E.**, & Feaga, L.M. 2020. [RNAAS](#), **4**, 7
- [1] *Investigating the Nature of Late-time High-energy GRB Emission through Join Fermi/Swift Observations.*
Ajello, M., et al. (including **Holt, C.**) 2018. [ApJ](#), **863**, 138

CIRCULARS & TELEGRAMS

- [6] *Rotation period of comet C/2022 E3 ZTF from CN morphology.*
Knight, M.M., **Holt, C.E.**, Villa, K.M., Skiff, B.A., & Schleicher, D.G. 2022. [ATel 15879](#)
- [5] *Small Apparent Outburst of Comet 73P/Schwassmann-Wachmann 3.*
Kelley, M.S.P, Lister, T., & **Holt, C.E.** on behalf of the LCO Outbursting Objects Key Project. 2022. [ATel 15560](#)
- [4] *Disintegration of Near-Sun Comet C/2021 O3 (PANSTARRS)*
Zhang, Q. Ye, Q., Farnham, T.L., & **Holt, C.E.** 2022. [ATel 15358](#)
- [3] *Comet C/2021 G2.*
Holt, C., (and measured by Micheli, M.). 2021. CBET 5057
- [2] *Apparent Outburst of Comet C/2014 UN₂₇₁ (Bernardinelli-Bernstein).*
Kelley, M.S.P, Lister, T., & **Holt, C.E.** on behalf of the LCO Outbursting Objects Key Project. 2021. [ATel 14917](#)
- [1] *Comet 12P/PONS-BROOKS.*
Knight, M.M., **Holt, C.E.**, Ye, Q-Z., Feaga, L.M., Kelley, M.S.P., Shumar, L., Sanborn, J., & Hayslip, A. (and measured by Ye and Farnham, T.L.). 2020. CBET 4805

REFEREED ARCHIVED DATASETS

- [1] **Holt, C.E.**, Knight, M.M., & Ye, Q., “Ground-based optical imaging of near-Sun asteroids V1.0”,
urn:nasa:pds:bundle_tbd, NASA Planetary Data System, submitted.

HONORS & AWARDS

- International Travel Grant, *American Astronomical Society* (2024)
- Catalyst Postdoctoral Fellowship, *LSST-DA* (2023)
- Future Investigators in NASA Earth and Space Science & Technology Fellowship, *NASA* (2022)
- ProAm Comet Workshop Travel Grant, *Europlanet Society* (2022)
- Summer Research Fellowship, *University of Maryland* (2021)
- The Jacob K. Goldhaber Travel Grant, *University of Maryland* (2018)
- NASA Group Achievement Award, *Rosetta Alice Instrument Team* (2017)
- Philip E. Angerhoffer Outstanding Graduate Teaching Assistant, *UMD Astronomy Dept.* (2016)
- Harvey Logan Memorial Award in Physics, *Wagner College* (2014)
- Excellence in Physics Award, *Eastern Colleges Science Conference* (2014)

MISSION INVOLVEMENT

- DART, *Investigation Team Member* (2022 - 2023)
- Comet Interceptor, *Science Team Associate* (2022)
- Rosetta, *Alice UV spectrograph team* (2015 - 2016)

OBSERVING EXPERIENCE

- SOAR (remote and robotic)
- Lowell Discovery
- Lowell 42-in
- Lowell 31-in (robotic)
- Las Cumbres (robotic)

SUCCESSFUL TELESCOPE PROPOSALS

JWST	Co-I (PI: C. Snodgrass)	(13 hrs robotic)	DDT (Cycles 3&4)
SOAR	PI	(30 hrs classical)	2023A
	PI	(89 hrs robotic)	2022A – 2023B
	Co-I (PI: M. M. Knight)	(60 hrs robotic)	2021A, 2021B
LDT	PI	(5 hrs classical)	2023A
	Co-I (PI: Ye, Knight, Kelley, Feaga)	(> 200 hrs classical)	2019B – 2023A
VLT	Co-I (PI: C. Snodgrass)	(11 hrs robotic)	2022A
Lowell 31-in	PI	(20 hrs robotic)	2020A

SCIENTIFIC PRESENTATIONS

INVITED TALKS

- “*Brightening trends of distant long-period comets*”
Caltech/IPAC Lunch Seminar. Pasadena, CA. December 2024
- “*The Impact of Ground-Based Surveys on Small Body Science*”
Committee of Space Research (COSPAR). Busan, South Korea. July 2024
- “*AEON: an observer’s prospective on queued follow-up*”
What was that? - Planning ESO follow up [...] in the era of LSST. Garching, Germany. January 2024
- “*Discriminating the dynamical history of Oort cloud comets using brightness behavior*”
Cosmic Streams in the Era of Rubin. Puerto Varas, Chile. December 2023
- “*Activity of Oort Cloud Comets*”
Lowell Observatory Colloquium. Flagstaff, AZ. January 2023
- “*Activity of Oort Cloud Comets*”
USNA Physics Brown Bag Seminar. Annapolis, MD. October 2022
- “*Activity of Oort Cloud Comets*”
Institute for Astronomy Coffee Talk. Edinburgh, UK. June 2022
- “*Activity of Oort Cloud Comets*”
NOIRLab Friday Scientific Lunch Talks (FLASH). NOIRLab. Virtual. April 2022

- “*Activity of Oort Cloud Comets*”
UMD Planetary and exoplanetary Astronomy Lunch Seminar (PALS). College Park, MD. April 2022
- “*Spatial Variations of Comet 103P/Hartley 2’s Volatiles: Three Weeks of Deep Impact Data*”
UMD Planetary Astronomy Late-morning Seminar (PALS). College Park, MD. April 2018

CONTRIBUTED TALKS

- “*The brightening trends of distant long-period comets*”
Division of Planetary Science. Boise, ID. October 2024
- “*A new brightening law for long-period comets*”
Comet Interceptor Science Working Team Meeting #4. Noordwijk, Netherlands. April 2024
- “*Discriminating the dynamical history of Oort cloud comets using brightness behavior*”
Asteroids Comets Meteors Meeting. Flagstaff, AZ. June 2023
- “*Surface Properties of Near-Sun Asteroids*”
Lowell Discovery Telescope Partners’ Meeting. virtual. November 2022
- “*Monitoring the activity of distant comets*”
Division of Planetary Science. London, Canada. October 2022
- “*The LCO Outbursting Objects Key (LOOK) Project*”
Comet ProAm Workshop. Prague, Czech Republic. June 2022
- “*Small Perihelion Effects on Near-Sun Asteroids*”
Planetary Defense Conference. Virtual. April 2021
- “*Small Perihelion Effects on Near-Sun Asteroids*”
Division of Planetary Science. Virtual. October 2020
- “*Small Perihelion Effects on Near-Earth Objects*”
Division of Planetary Science/European Planetary Science. Geneva, Switzerland. September 2019
- “*Continuous Monitoring of Spatial Variations in 103P/Hartley 2’s Volatiles from Deep Impact*”
Division of Planetary Science. Knoxville, TN. October 2018
- “*Lack of High-Energy Afterglows of Gamma-ray Burst*”
Eastern Colleges Science Conference. Poughkeepsie, NY. March 2014

POSTERS

- “*Characterizing newly discovered distant comets*”
Division of Planetary Science Conference. Virtual. October 2021
- “*Using Deep Impact to Continuously Monitor Spatial Variations in 103P/Hartley 2’s Volatiles*”
American Geological Union. Washington, D.C. December 2018
- “*Missing High Energy Afterglows of Gamma-ray Bursts*”
American Astronomical Society. Washington, D.C. January 2014

TEACHING EXPERIENCE

Teaching Assistant ASTR220 “Collisions in Space – The Threat of Asteroid Impacts”	University of Maryland <i>Fall 2021-Spring 2022</i>
Teaching Assistant MATH 115 “Precalculus”	University of Maryland <i>Fall 2018</i>
Teaching and Lab Assistant ASTR 101 “Introduction to Astronomy”	University of Maryland <i>Fall 2018-Spring 2019</i>
Lab Assistant “Elements of Physics I & II”	Wagner College <i>Fall 2013-Spring 2014</i>

STUDENTS ADVISED

- **Arturo Joya**, Olin College, *“TBD”*
Fall 2024
- **April Luce**, University of California Santa Barbara , *“Updating NEOExchange for the Hera mission”*
Summer 2024
- **Felix Forcho**, Prince George’s Community College, *“Activity of Near-Sun Asteroids”*
Winter 2020, as part of UMD’s GRADMAP outreach program.

PROFESSIONAL SERVICE & MEMBERSHIPS

Referee	Planetary Science Journal Monthly Notices of the Royal Astronomical Society
Review Panelist	NOIRLab Time Allocation Committee NASA ROSES (Executive Secretary)
Committee Service	AAS Division of Planetary Science Professional Development Committee, 2024 - present LSST-DA Catalyst Symposium Scientific Organizing Committee, 2024 LCO Seminar Team, 2024 - present Early Career Rep. - LSST Solar System Science Collaboration., 2023 - present Astronomy Graduate Student Council Rep. - UMD Dept., 2017–2021
Member	LSST Solar System Science Collaboration (SSSC), 2022 International Space Science Institute (ISSI) International Team, “The Life Cycle of Comets”, 2021 The LCO Outbursting Objects Key (LOOK) Project Collaboration, 2020
Society Membership	American Astronomical Society, Full Member

POPULAR MEDIA

- *“Preparing for something we haven’t seen yet with Dr. Holt”*
Spacepod. [podcast](#). October 2024
- *“Rubin Observatory Aims To Detect 5 Million New Solar System Objects”*
Forbes. [online](#). January 2024
- *Interview on October 14th Annular Eclipse*
KCLU (regional npr). [radio](#). October 2023
- *“‘Millennium Falcon’ Comet Sprouts Icy Wings as It Loops around the Sun”*
Scientific American. [online](#). July 2023
- *“A green comet is visiting us from the edge of the solar system, and astronomers are thrilled”*
Popular Science. [online](#). January 2023
- *“What the Green Comet Tells Us About the Past—and the Future”*
The New Yorker. [online](#). January 2023
- *Interview on C/2022 E3 (ZTF)*
90.3 kazu (regional npr). [radio](#). January 2023