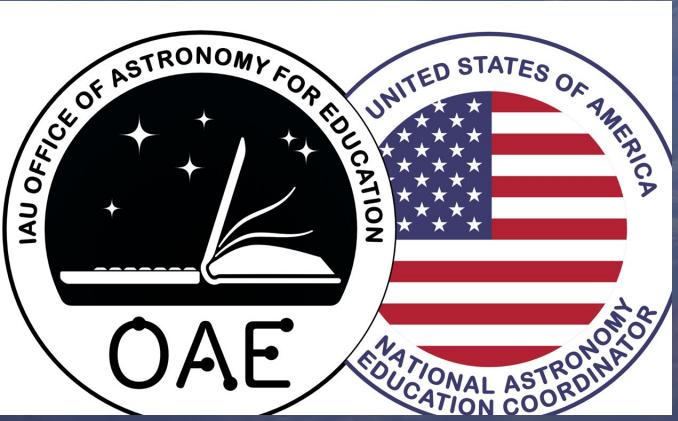
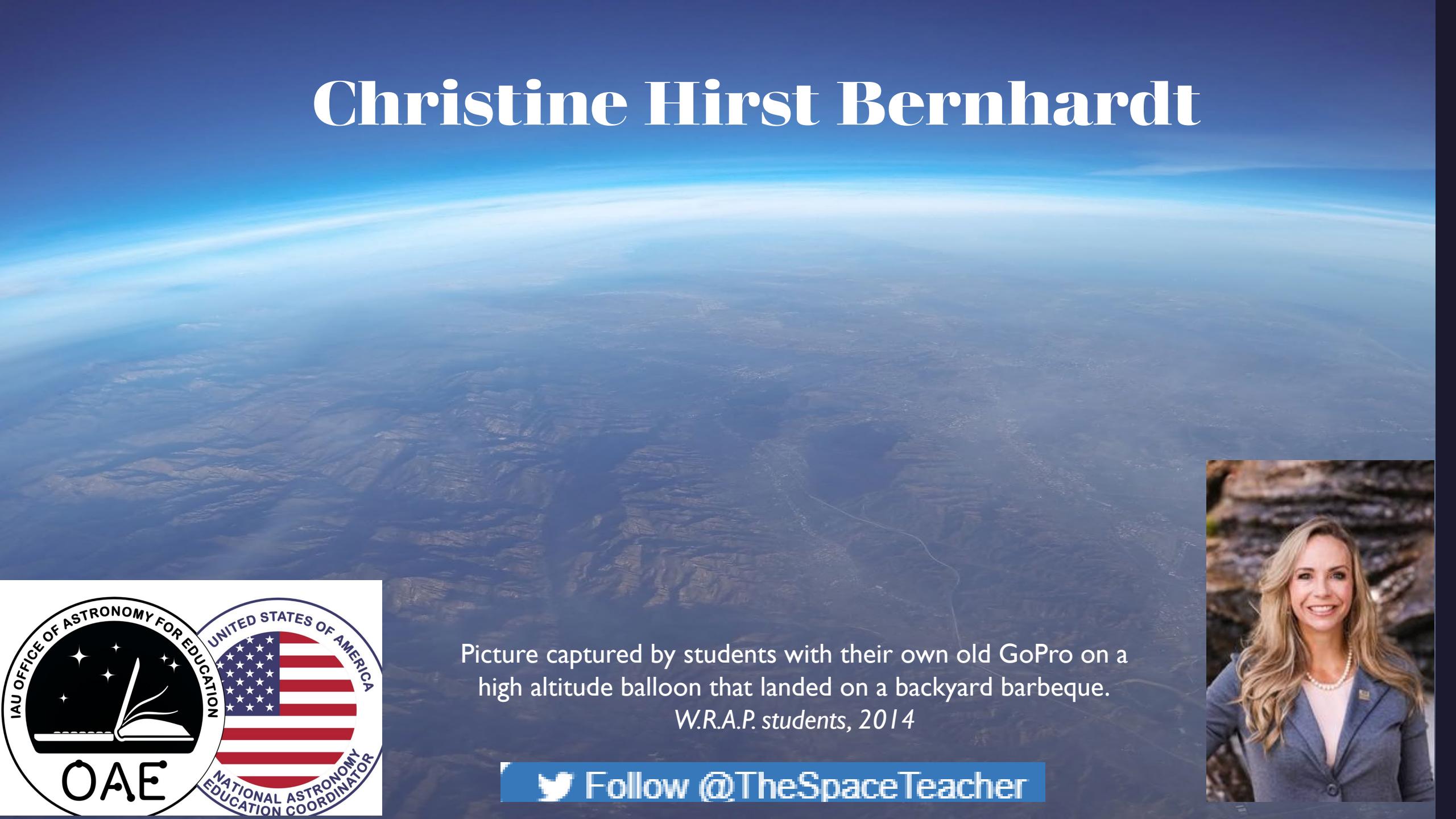


# Christine Hirst Bernhardt



Picture captured by students with their own old GoPro on a high altitude balloon that landed on a backyard barbecue.  
W.R.A.P. students, 2014

 Follow @TheSpaceTeacher



# My journey

- Wanted to work in space
- Music major; then geology
- Educator since 2004:
  - Outdoor ed, high school, college
- Students are my driver
- Teaching space globally
- Astronomy Ed Projects
- Space as a STEM gateway



May 18, 2018



# Authentic opportunities to do science



# Earth and Space = Fewest Women and POC

- ~15% of global astronomers (Cesarsky & Walker, 2010)
- <100 PhDs granted to African American Women (Women in Physics and Astronomy, 2019)
- Non-white PhD in astronomy 1%-5% (NRC, 2013; (Women in Physics and Astronomy, 2019)
- IAU Membership is 21% women-but changing!



offer no  
biology  
courses



offer no  
chemistry  
courses



offer no  
physics  
courses

*Science course offerings in schools where at least 80% of students are Black, Latino/a, or Indigenous.*

# NASEM Call to Action for Science Education

Substantial, disproportionate opportunity gaps to learn science:

## **Elementary school is CRITICAL!**

- STEM Identification (Kim & Sinatra, 2016)
- Resources
- Qualified teachers
- Diverse educator work force

*Journal of Science Policy & Governance*

**POLICY POSITION PAPER: SCIENCE EDUCATION**

**Hardwired to learn science but left out of the landscape: the role of expanding access to quality science education in America for elementary learners**

**Christine Hirst-Bernhardt<sup>1</sup>, Kama Almasi<sup>1</sup>**

<sup>1</sup>Albert Einstein Distinguished Educator Fellowship Program, Washington, DC

<https://doi.org/10.38126/ISPG200204>

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Keywords: elementary education; STEM education; science education; elementary education policy; teacher professional development; STEM workforce; STEM pipeline



**20** minutes per day to science



**90** minutes per day to English/Language Arts



**60** minutes per day to mathematics

*Average time spent per day in elementary classrooms.*

# Academic Prioritization Problem

- No AP Course
- Lowest level science
- Not counted towards University
- Lowest number of credentialed
- 
- 



## ESS: Earth and Space Science

Show Tips 

### ESS1: Earth's Place in the Universe

ESS1.A: The Universe and Its Stars

ESS1.B: Earth and the Solar System

ESS1.C: The History of Planet Earth

ems  
e-Scale System Interactions  
Earth's Surface Processes

ivity

Systems



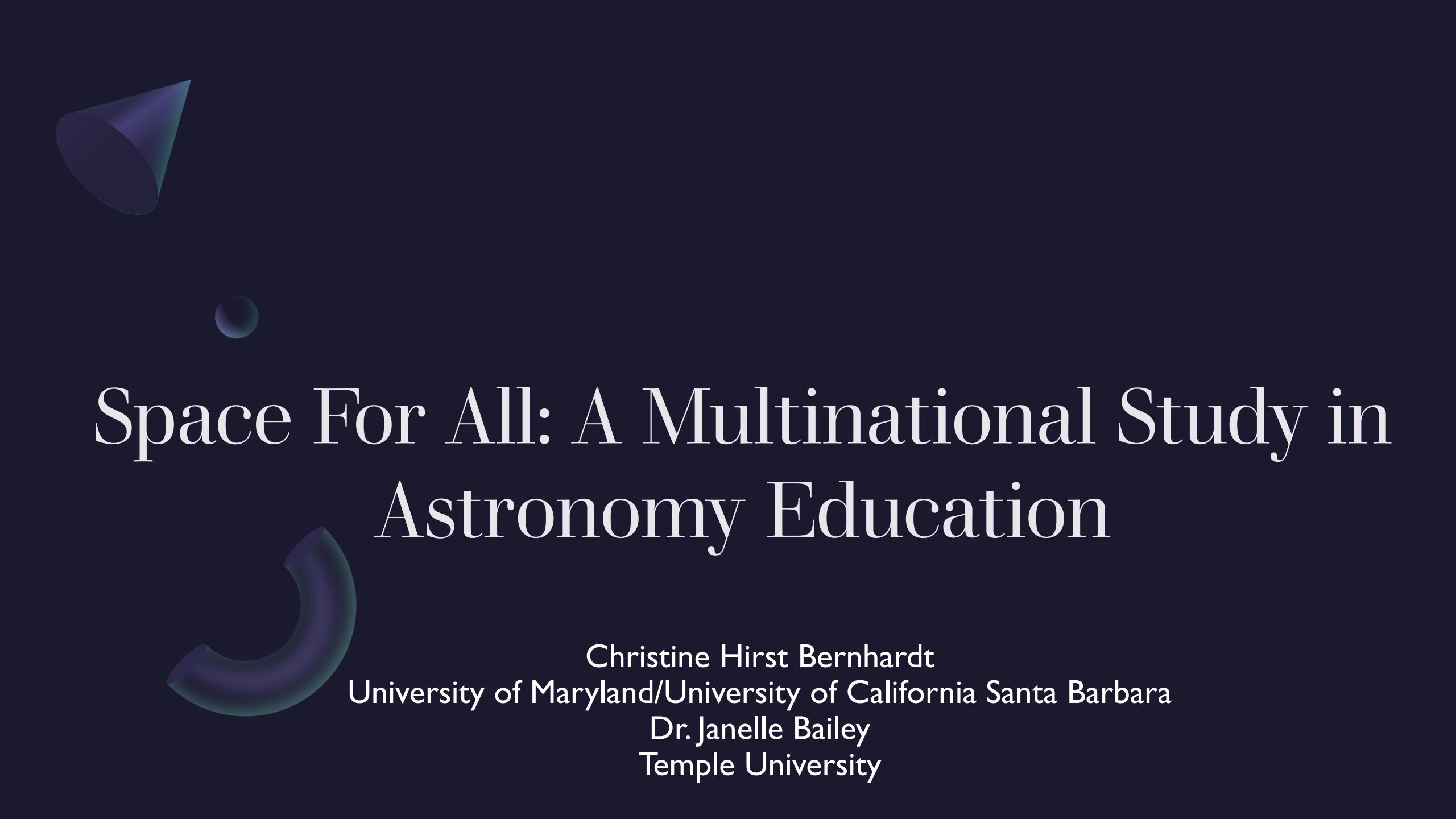
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# Space For All: A Multinational Study in Astronomy Education

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