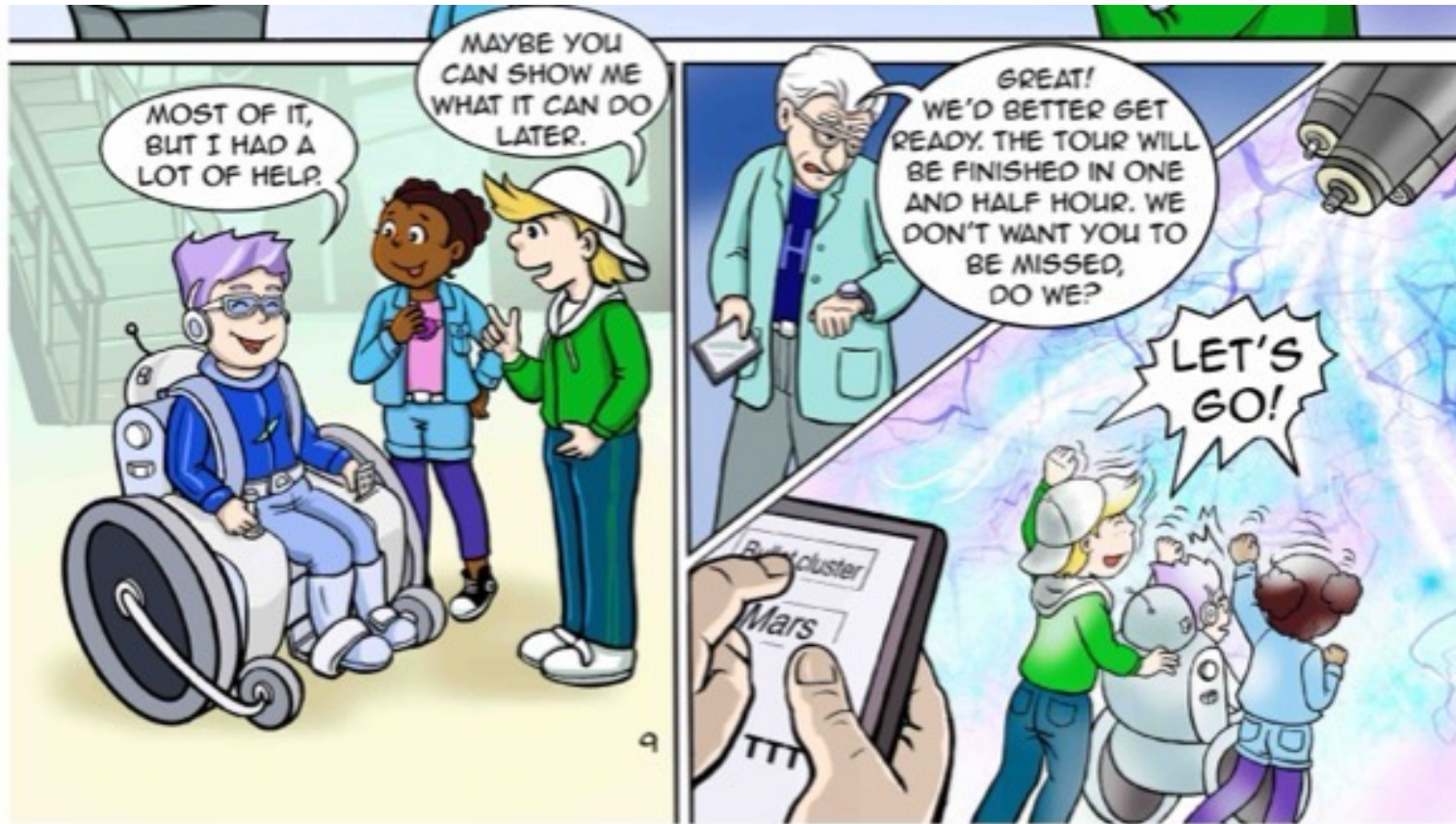




# Galaxy scouts: adventures with Stella and Riley

Snezana Stanimirovic & Rebecca Cors  
Presentation for the Board of Visitors, Oct 2023



Idea Endowment



# Motivation

- NSF, Council for American Competitiveness, National Academies: need for a large increase in STEM workforce
- Media coverage of science is spotty and scientists are often caricatured in the media
- Stereotypes regarding scientists are barriers to engagement of elementary and middle-school students



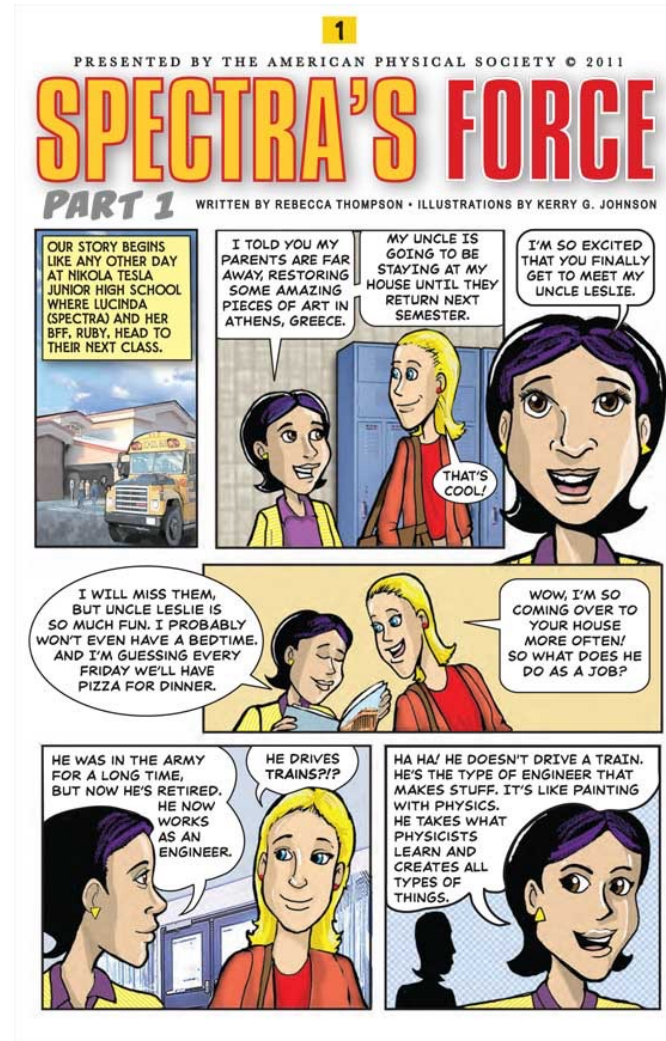
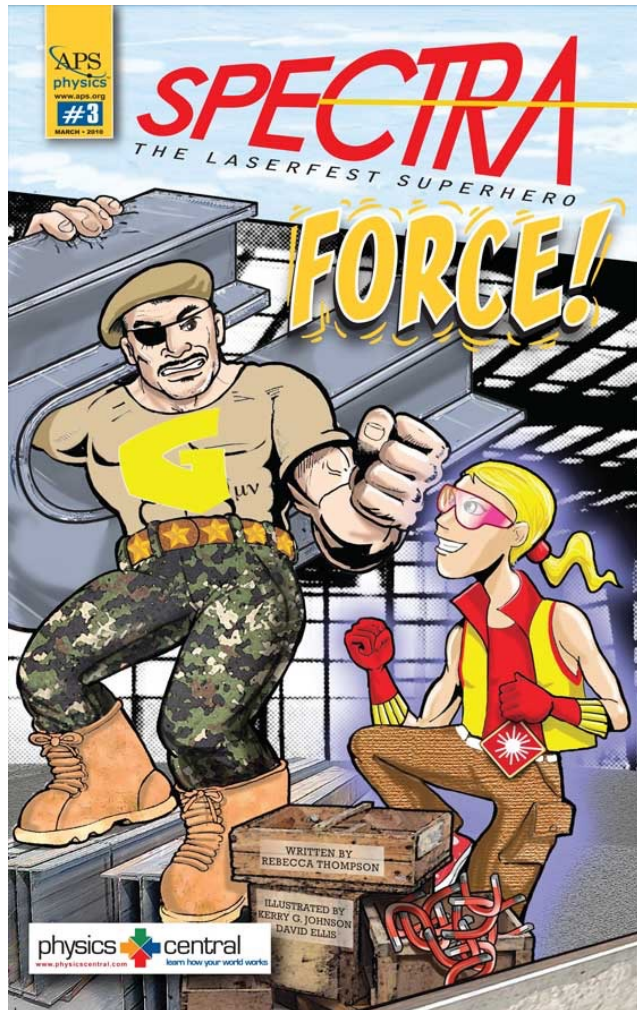
Big Bang theory



Slide modified from Dr. Sarbajit Banerjee



# Inspiration



APS Comic Book Series aimed at high-school kids

“Spectra” is a superhero endowed with “laser powers”

Manual with exercises and activities.

# How it all started: the Cottrell Comic Challenge Project

Snezana Stanimirovic (PI): University of Wisconsin

Yadong Yin: University of California Riverside

Michael Gladders: University of Chicago

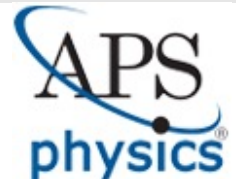
Karen Bjorkman: University of Toledo

Bo Hammer: American Physical Society

Sarbajit Banerjee: University at Buffalo, SUNY

## Objectives:

- Demystify the life of scientists
- Emphasize creativity and “coolness factor” of science
- Underline how scientific advances are transforming daily lives
- Improve societal literacy of STEM disciplines.
- Share the excitement and importance of STEM discoveries with young generations.



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*A foundation dedicated to science since 1912.*



# Galaxy scouts focus: why this age group?



- Studies have shown that *middle school* is a critical time to encourage students' interest in STEM disciplines (Bybee & McCrae 2011). This is the time when many young people are identifying their core interests and abilities.
- Girls in middle school show a declined interest in mathematics and STEM areas.
- Studies have shown that introducing scientific concepts in an interesting way is essential to spark students' interest in science, and to promote long-term scientific literacy.
- → **Focus:** 4<sup>th</sup> to 8<sup>th</sup> grade reading level (age 9-13) + comic strip

<https://www.astro.wisc.edu/outreach/astro-comic/>









- **Snezana Stanimirovic:** Professor, UW-Madison Astronomy Department,
- **Dr. Amy Gaeta:** UW-Madison
- **Kay Kriewald:** Senior Outreach Specialist, UW Space Place
- **Robert Tetzner:** Senior ELSI educator, artist, owner of T&C Language Center, Taipei (Taiwan)
- **Jan Lin:** illustrator, artist, UW-Madison
- **Dr. Rebecca Cors:** Evaluator and Scientist, Science and Nature Learning, UW-Madison

## The Galaxy Scouts Team




**Snezana Stanimirović**

- From Kruševac, Serbia
- Astronomy professor at UW-Madison
- Creator and advisor for the comic
- Likes figure skating and comics




**Rebecca Cors**

- From Milwaukee, WI and Liechtenstein
- Research and Evaluation Scientist
- Wisconsin Master Naturalist
- Likes hiking, reading, and learning languages




**Amy Gaeta**

- From Boston, MA
- Proofreader and editor for the comic
- Likes traveling, cats, and robots




**Kay Kriewald**

- From Merrill, WI
- Science teacher
- Field testing for the comic and activities
- Likes playing with her dog Luna



**Jan Lin**

- From Taipei, Taiwan
- Artist and illustrator
- Creative director for the comic
- Likes travel, movies and music



**Robert Tetzner**

- From Thorp, WI
- Artist and ESL teacher
- Chief writer and activity designer for the comic
- Likes drawing, painting, and comic book collecting

Art:  
Robert Tetzner



# GALAXY SCOUTS

Space-Ventures  
With Stella and Riley

Volume 1  
The Secret of a  
Bok Globule



PUBLISHED BY UW-MADISON  
ASTRONOMY DEPARTMENT  
SNEZANA STANIMIROVIC



ART BY  
JAN LIN

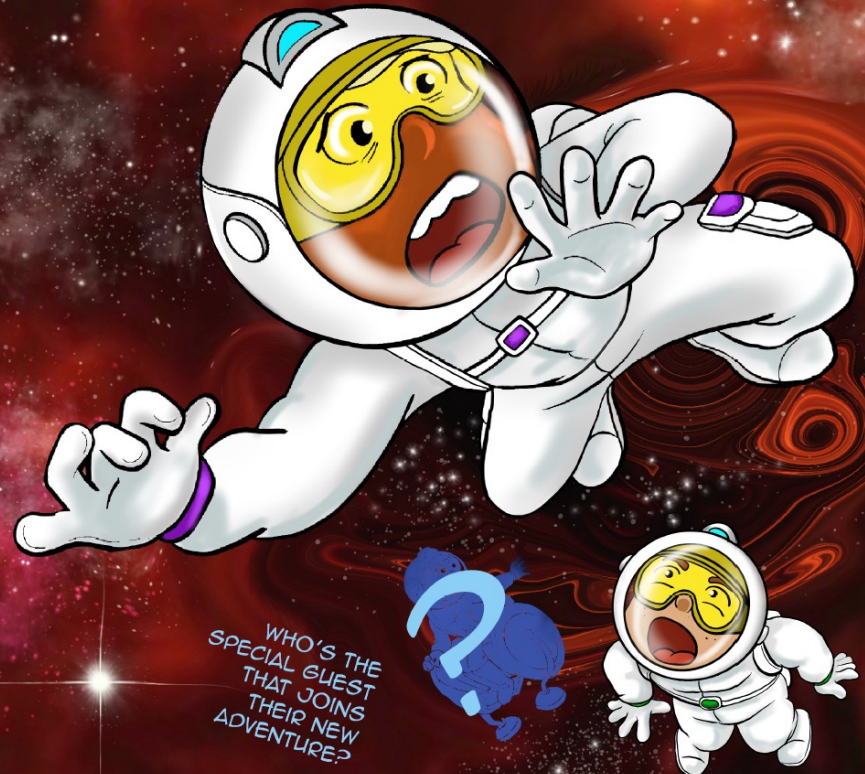
# GALAXY SCOUTS



Space-Ventures  
With Stella and Riley

VOLUME 2

WHAT IS  
DARK  
MATTER?



WHO'S THE  
SPECIAL GUEST  
THAT JOINS  
THEIR NEW  
ADVENTURE?

PUBLISHED BY UW-MADISON  
ASTRONOMY DEPARTMENT  
SNEZANA STANIMIROVIC



STORY BY  
ROBERT TETZNER

ART BY  
JAN LIN



# GALAXY SCOUTS



## Activity Book 1

Space-Ventures  
With Stella and Riley



PUBLISHED BY UW-MADISON  
ASTRONOMY DEPARTMENT  
SNEŽANA STANIMIROVIĆ



ACTIVITY DESIGN  
BY  
ROBERT TETZNER

ART  
BY  
JAN LIN



## Activity Book 2

# GALAXY SCOUTS

Space-Ventures  
With Stella and Riley



PUBLISHED BY UW-MADISON  
ASTRONOMY DEPARTMENT  
SNEŽANA STANIMIROVIĆ



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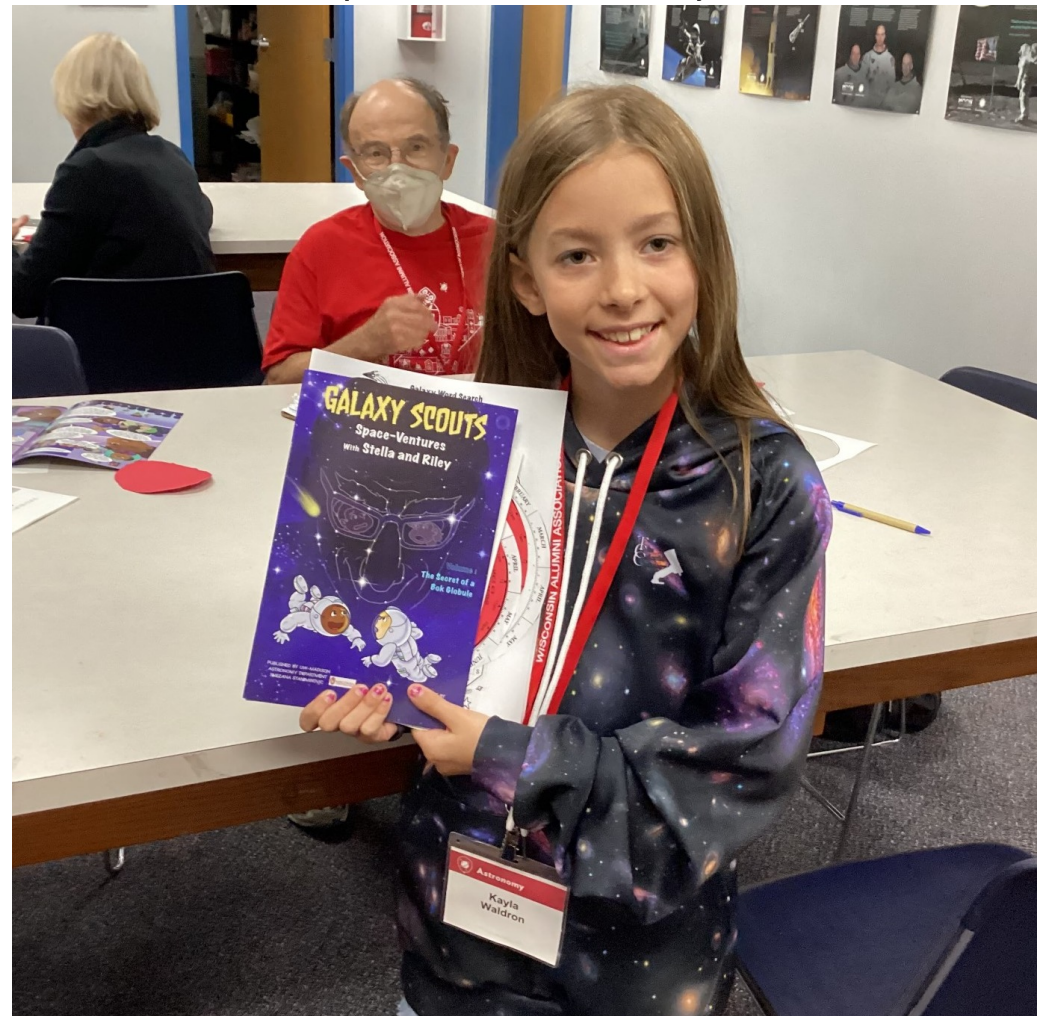


Science Expeditions at UW 2022

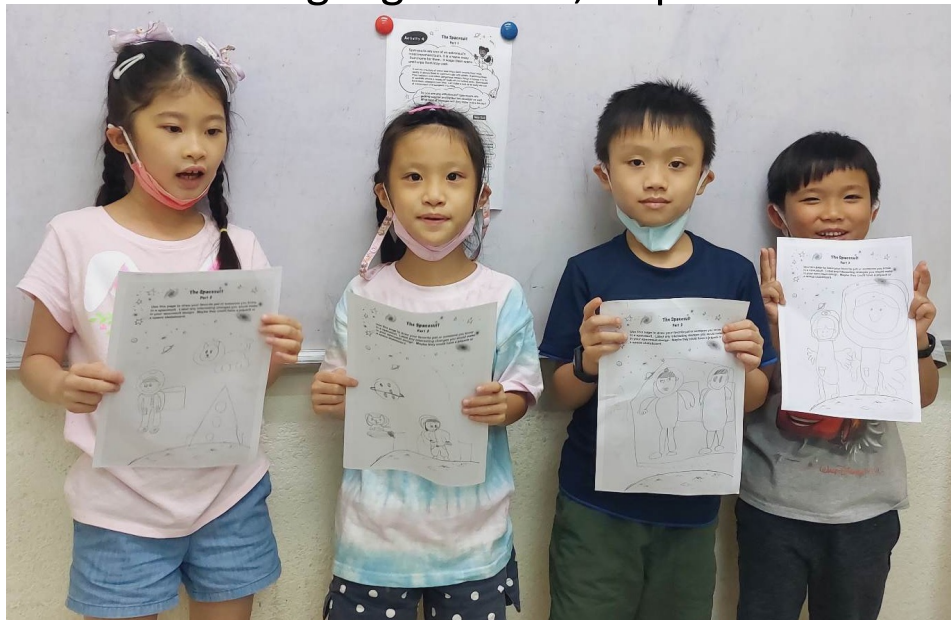


# Have been used for various outreach projects

Grandparents University at UW 2023



T&C Language Center, Taipei



Available on project web page



Wisconsin  
Evaluation  
Collaborative

September 2022

# Year 1 Evaluation Report

Galaxy Scouts Comic Book Series

UW-Madison Astronomy Department

*Rebecca Cors*



## GALAXY SCOUTS

## EVALUATION

Evaluator: Dr. Rebecca Cors,  
Wisconsin Center For  
Education Research

October 13, 2023 presentation to the  
UW-Madison Astronomy Department



# EVALUATION PLAN

## Y1: EXPLORE

- Get feedback on Comic Book #1 from
- Pilot test some evaluation tools (eg., surveys, interviews).

## Y2: DEVELOP

- Test activities for making Activity Book #1.
- Complete comic book #2.

## Y3: Run ambassador program?

- Get feedback about Activity Book from youth, educators.
- Measure youth outcomes from Ambassador program.
- Explore how to sustain Galaxy Scouts.

# Evaluation Activities and Products

Activity	Purpose	Sample size
Fact Sheet	<ul style="list-style-type: none"><li>▪ Communicate with participants about the program goals</li><li>▪ Inform about purpose and process of evaluation.</li></ul>	na
Youth Survey	<ul style="list-style-type: none"><li>▪ Elicit feedback from youth about comprehension and engagement.</li></ul>	41 youth
Educator Interviews	<ul style="list-style-type: none"><li>▪ Better understand how to engage youth through comic books.</li><li>▪ Elicit ideas for effectively designing activity books.</li></ul>	2 groups 5 educators each
Test activities	<ul style="list-style-type: none"><li>▪ Garner feedback from youth on activities under development.</li></ul>	202 youth in 7 groups

## Products of evaluation:

- Suggestions useful: improve age-look of characters; improve, simplify story line of Comic Book #2.
- [Proof of comic book concept](#) as an engaging tool to inspire youth about STEM.
- Evaluation rubric educators' feedback on first Activity Book #1 based on the [Activation Lab](#).