



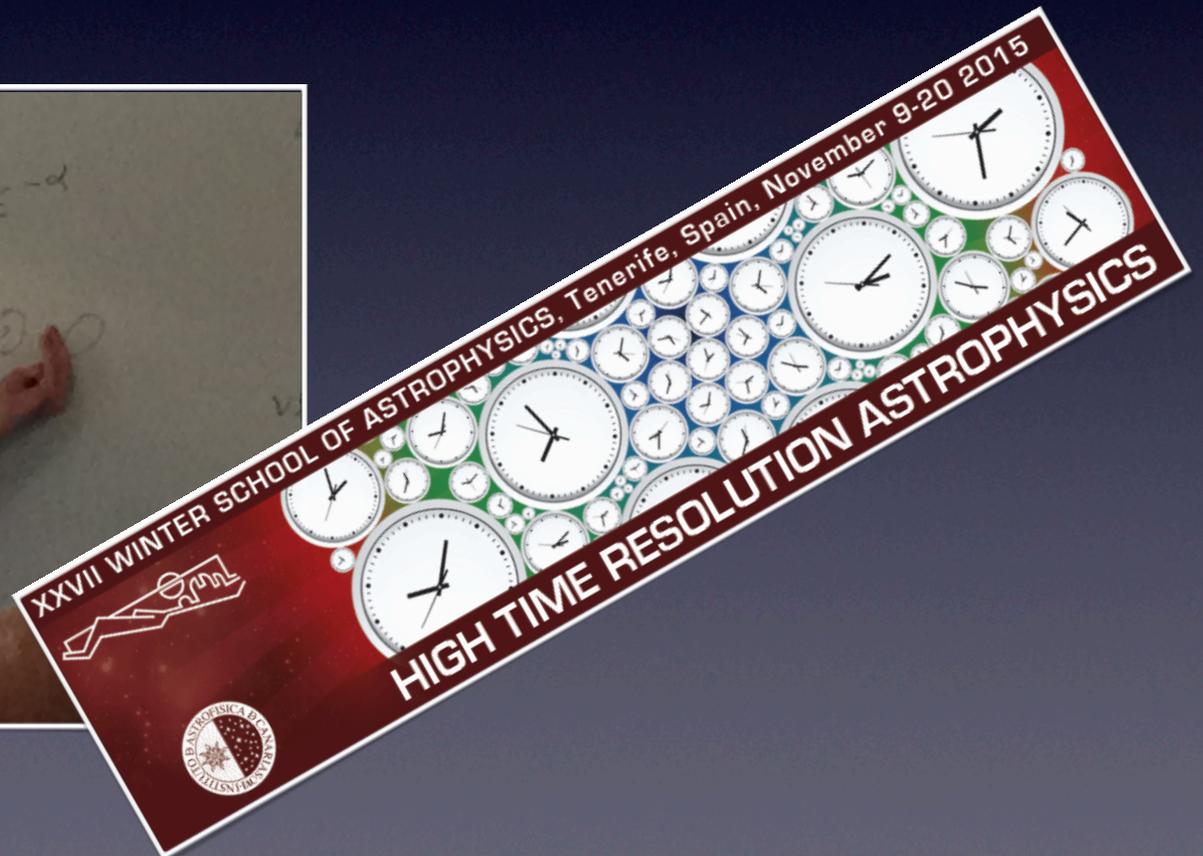
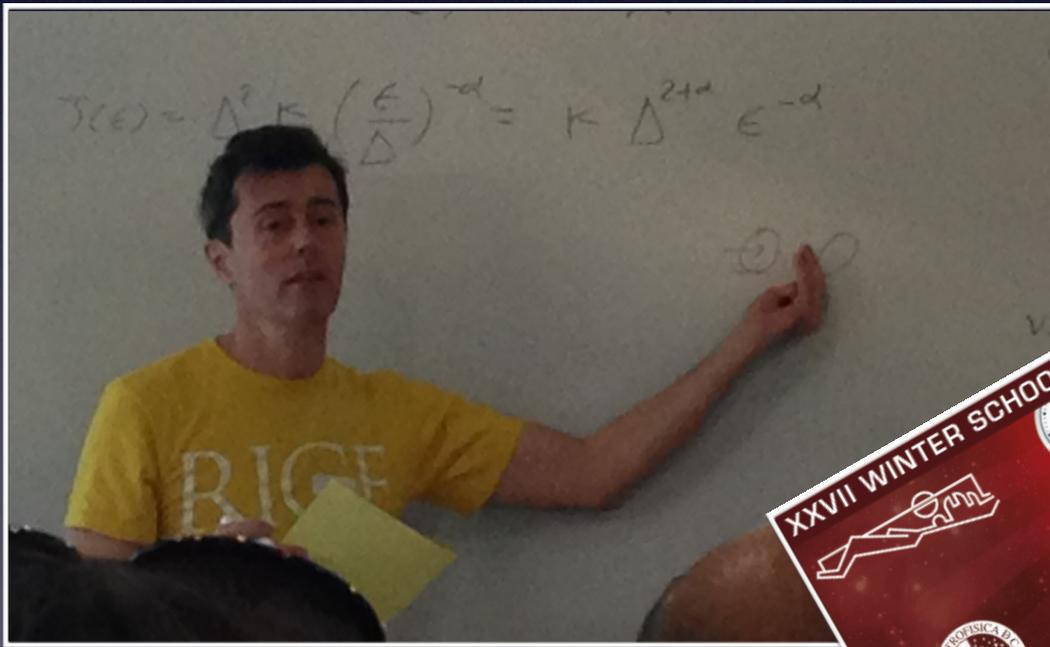
# Adventures in Science!

(...communication)

# Teaching Opportunities

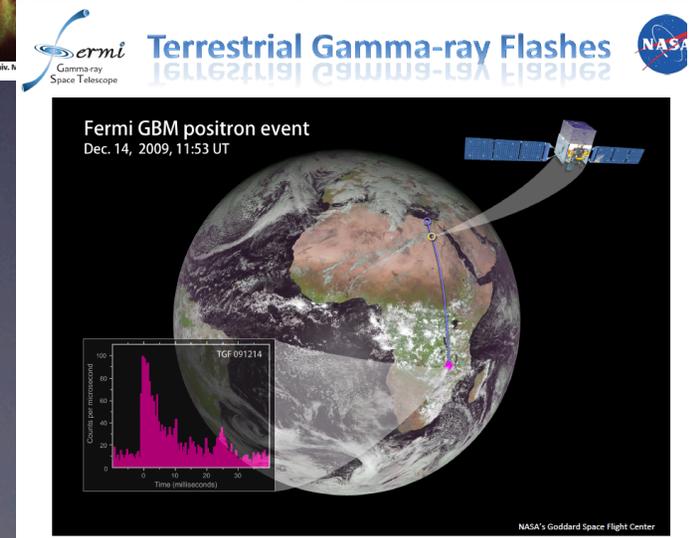
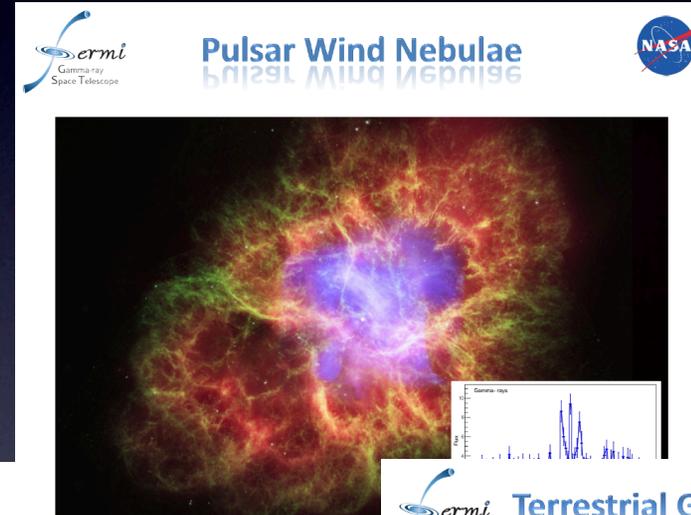
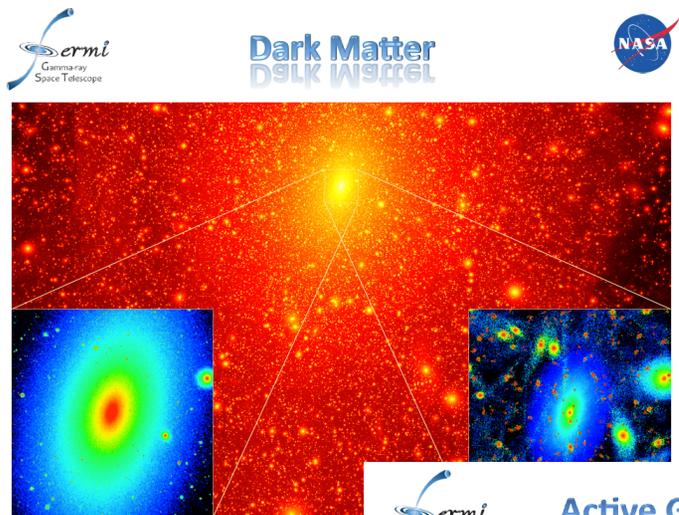
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- ★ Helps create more gamma-ray researchers
  - ▶ Fermi Summer School - *all python!*
  - ▶ IAC Winter School - “High Time Resolution Astrophysics”



# Science Lithographs

- ★ Updated science handouts as needed to reflect state of the art science



# Science Jamboree

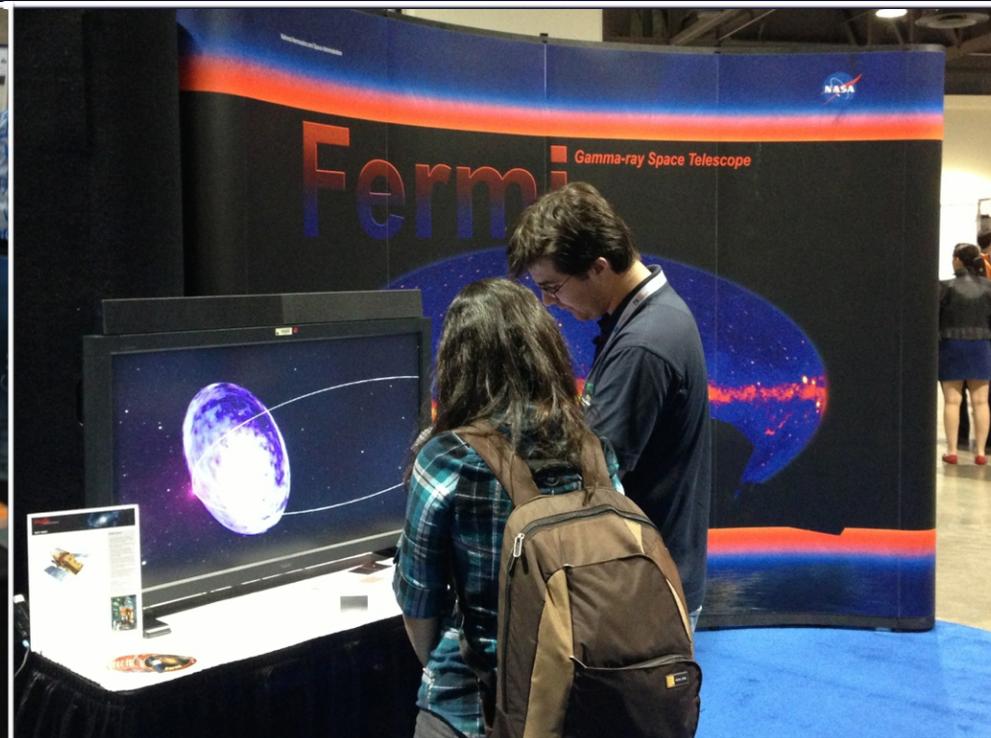
- ★ Internal GSFC event
  - Shares *Fermi* science/technology with lab



# Meeting Outreach

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- ★ Increased visibility at:
  - AAS - Joint *Fermi*, Swift, NuStar booth
  - ▶ IAU - Part of the OneNASA booth
  - ▶ APS - Part of PCOS booth



# Build A Pulsar!

- ★ Science activity for schoolchildren at both winter AAS and IAU
  - Visibility to 125 and 200 kids respectively



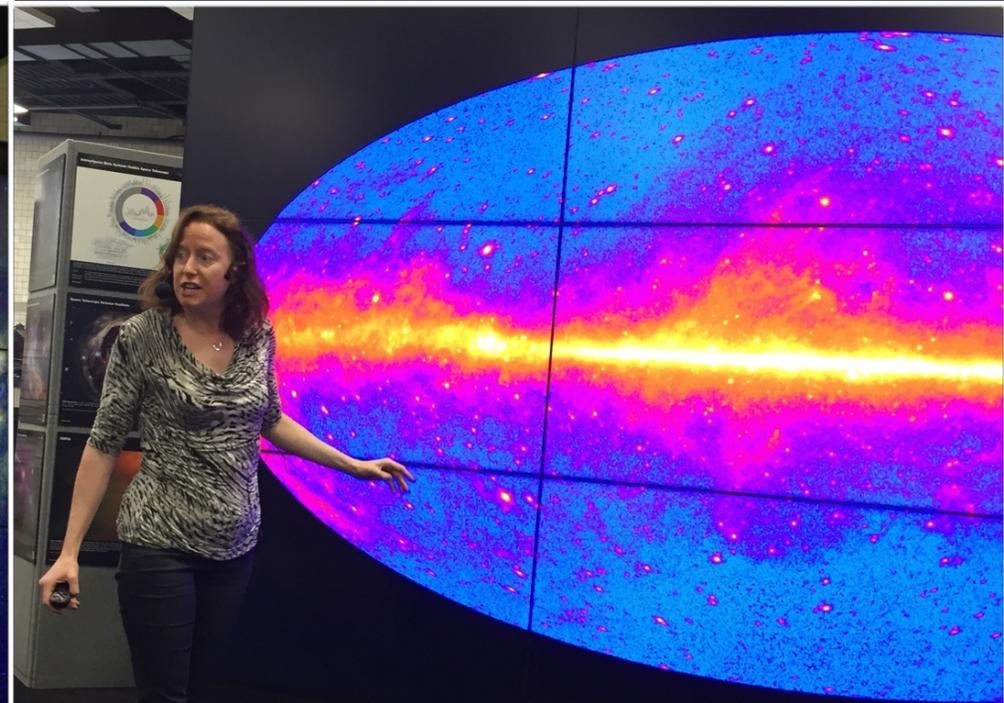
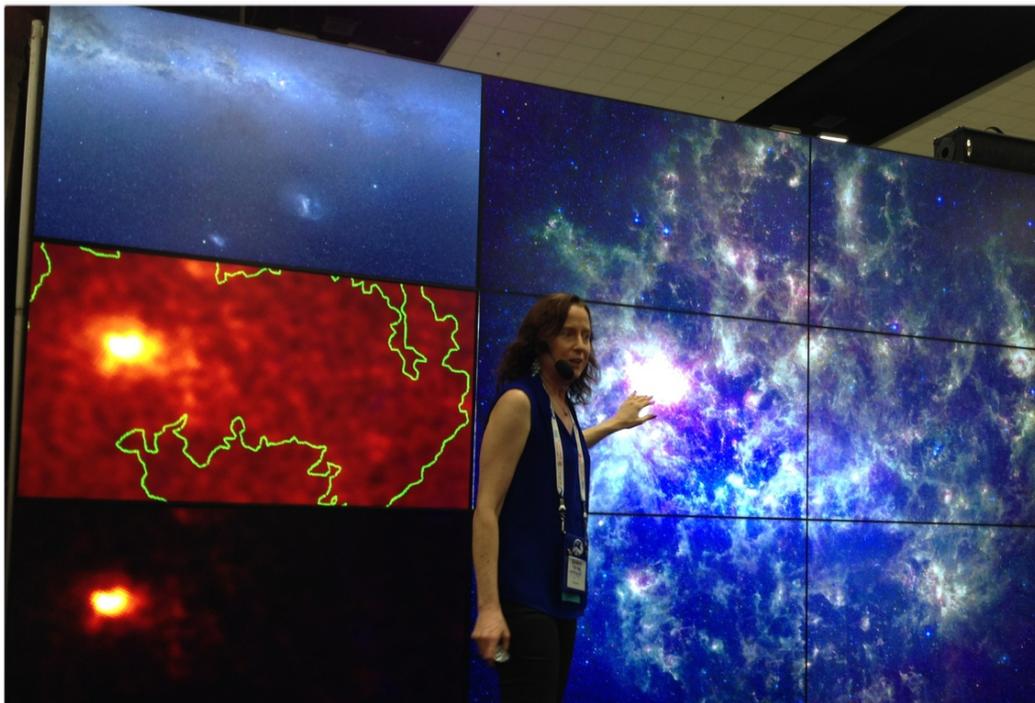
#AAS225  
#IAU2015

# NASA Hyperwall

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- ★ Developed two presentations for use with NASA's 3x3 traveling Hyperwall
  - ▶ “Detecting Particle Accelerators Across the Cosmos”
  - ▶ “Seven Years of *Fermi* Science”

#IAU2015





# Social Media Visibility



- ★ Working to increase Fermi visibility on Twitter and Facebook
  - ▶ More frequent Tweets
  - ▶ Use of Fermi-specific #Hashags

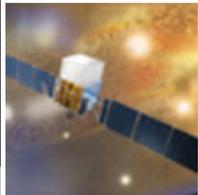
TWEETS 332 FOLLOWING 20 FOLLOWERS 41.5K LIKES 2

Tweets Tweets & replies Photos & videos

 **NASAFermi** @NASAFermi · Nov 2  
Come check out "Tooning the Extreme Cosmos" Tues, Nov 10 at NASA Details: [ow.ly/U8Rzy](http://ow.ly/U8Rzy)  
3 retweets 4 likes

 **NASAFermi** @NASAFermi · Oct 22  
Learn more about gamma-rays in this blog post for the International Year of Light [ow.ly/TJmGs](http://ow.ly/TJmGs)  
6 retweets 3 likes [View summary](#)

 **NASAFermi** @NASAFermi · Oct 20  
Have you seen the new Fermi poster? [go.nasa.gov/1NmadPh](http://go.nasa.gov/1NmadPh)  
4 retweets 6 likes

 **Fermi Gamma-ray Space Telescope**  
Government Organization Like Message

Timeline About Photos Likes Videos

28,944 people like this  
Invite friends to like this Page

ABOUT <http://fermi.sonoma.edu/>

PHOTOS

 **Fermi Gamma-ray Space Telescope**  
November 2 at 11:57am · @fermi  
Don't forget to pick up your free tickets for:  
Tooning the Extreme Cosmos  
Tuesday, November 10th... [See More](#)

  
Fermi: Tooning the Extreme Cosmos

# Gamma-Ray Constellations

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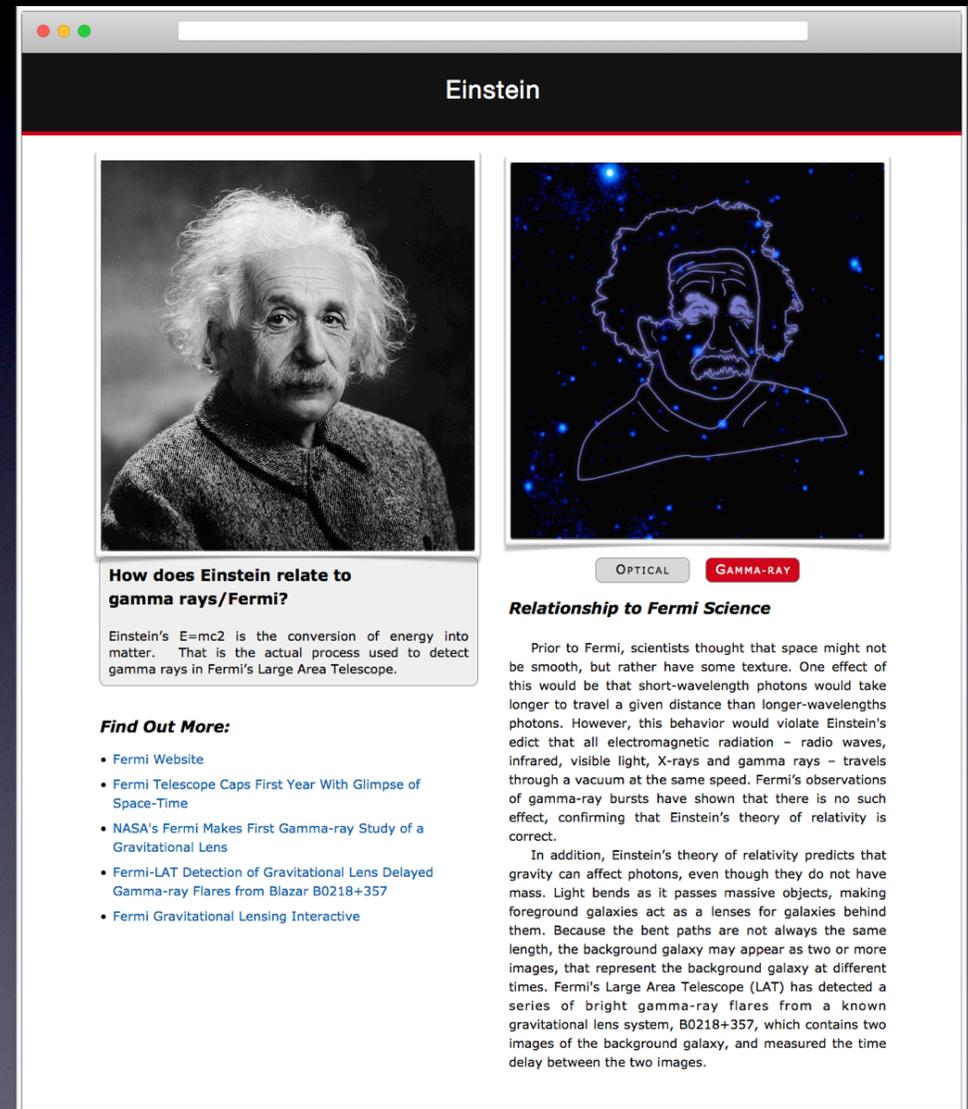
- ★ Creating web feature using *Fermi* 3FGL to generate set of 24 modern constellations
  - ▶ All-sky interactive viewer lets user see different views of sky and constellations

**INTERACTIVE DEMO**

# Gamma-Ray Constellations

- ★ Constellations use modern science and sci-fi imagery
  - ▶ Examples include Lighthouse, Tardis, Hulk, Enterprise
  - ▶ Click to link to mobile webpages for associated *Fermi* science topics

#AAS227



The screenshot shows a webpage titled "Einstein" with two main panels. The left panel features a black and white portrait of Albert Einstein. Below it is a section titled "How does Einstein relate to gamma rays/Fermi?" with a short paragraph explaining that Einstein's  $E=mc^2$  is the conversion of energy into matter, which is the process used to detect gamma rays in Fermi's Large Area Telescope. Below this is a "Find Out More:" section with five blue links: "Fermi Website", "Fermi Telescope Caps First Year With Glimpse of Space-Time", "NASA's Fermi Makes First Gamma-ray Study of a Gravitational Lens", "Fermi-LAT Detection of Gravitational Lens Delayed Gamma-ray Flares from Blazar B0218+357", and "Fermi Gravitational Lensing Interactive". The right panel shows a blue gamma-ray constellation of Einstein's face against a dark background with stars. Below this image are two buttons: "OPTICAL" (grey) and "GAMMA-RAY" (red). Below the buttons is a section titled "Relationship to Fermi Science" with a paragraph explaining that prior to Fermi, scientists thought space might not be smooth, but rather have some texture. One effect of this would be that short-wavelength photons would take longer to travel a given distance than longer-wavelength photons. However, this behavior would violate Einstein's edict that all electromagnetic radiation - radio waves, infrared, visible light, X-rays and gamma rays - travels through a vacuum at the same speed. Fermi's observations of gamma-ray bursts have shown that there is no such effect, confirming that Einstein's theory of relativity is correct. Below this is another paragraph explaining that in addition, Einstein's theory of relativity predicts that gravity can affect photons, even though they do not have mass. Light bends as it passes massive objects, making foreground galaxies act as a lenses for galaxies behind them. Because the bent paths are not always the same length, the background galaxy may appear as two or more images, that represent the background galaxy at different times. Fermi's Large Area Telescope (LAT) has detected a series of bright gamma-ray flares from a known gravitational lens system, B0218+357, which contains two images of the background galaxy, and measured the time delay between the two images.

# Explore@NASAGoddard

- ★ 17,000 visitors to #ExploreGoddard
  - ▶ Created new activity using constellations
  - ▶ “Seeing the Skies with Gamma-Ray Eyes”

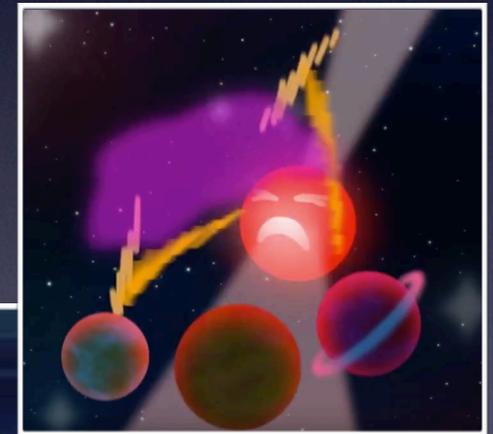


#FermiSky



# Tooning the Extreme Cosmos!

- ★ Public event at NASA HQ timed to coincide with the Sixth Fermi Symposium (*next week!*)
  - Present results of multi-year collaboration with 2-D animation students at MICA
  - ▶ Experts provide science behind the art



#FermiSky

