

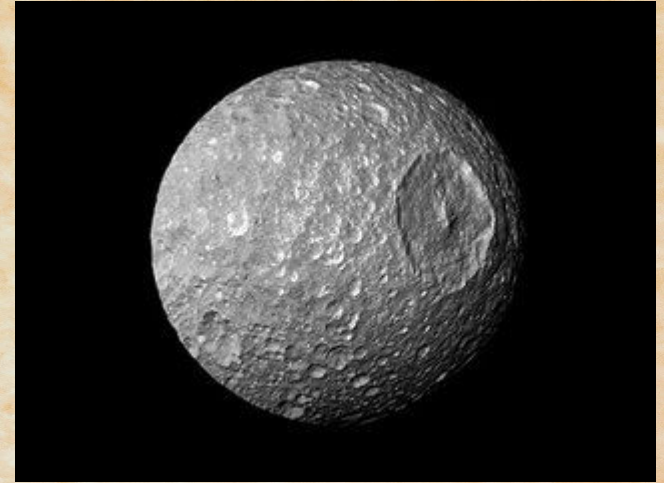
May 10, 2023 The Sexy Universe Struggle Stream Show Notes



TheSexyUniverse.com

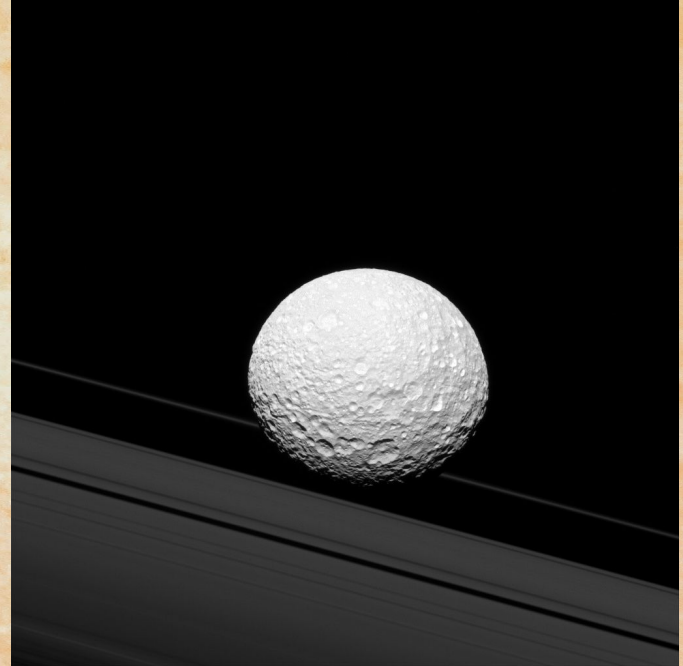
Can a Liquid Ocean Exist on Mimas?

- Known as the Death Star moon because of the “Herschel Crater”
- It’s orbital resonance might create the gap between Saturn Rings A and B
- Was mapped by the Cassini Probe (2007 to 2017)
- Discovered by William Herschel using his “40 foot Telescope”
- Named for the Greek giant conceived from the blood of Uranus



Possible Stealth Ocean on Mimas

- Egg Shaped
- 1/3rd the density of Earth's Moon, 1/12th the radius
- Surface temp is -315 deg F
- Little to no tectonics, which is surprising due to it's close orbit to Saturn
- Mimas's librations led to speculation that the moon has either an ocean and small stable core, or an unstable core with only an ice shell
- This study used the 87-mile Herschel impact basin to explore the possibility of a hidden ocean on Mimas



Is there a Hidden Ocean?

- According to the study's calculations Herschel had to have been formed by collision with another object orbiting Saturn (15 vs 27 km/s)
- Impacting object estimated at 4.8 km in diameter
- The shape of the impact crater implies that an ocean existed 34 to 44 miles below the surface at the time of impact
- The crater is estimated to be younger than 1 billion years old, and the ocean under Mimas's ice has grown since the impact occurred
- In order for Mimas to have created the Cassini division the tidal forces would have melted all the ice
- The model implies that an ocean is more likely than none

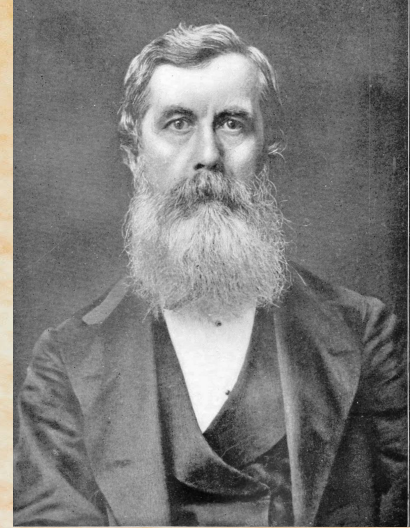
Born this Day - Cecilia Payne-Gaposchkin

- Born in 1900 in Wendover, England
- Studied botany, physics, and chemistry at Newnham College
- Was refused the opportunity to study astronomy in England but managed to work her way into a job at the Harvard Observatory
- Proved in her thesis "Stellar Atmospheres" that stars consist of ~70% H and ~30% He, with other elements making up less than 1% masses
- With the help of her husband, an assistant at the observatory, she mapped out more than 2,000,000 variable stars in the Magellanic Clouds



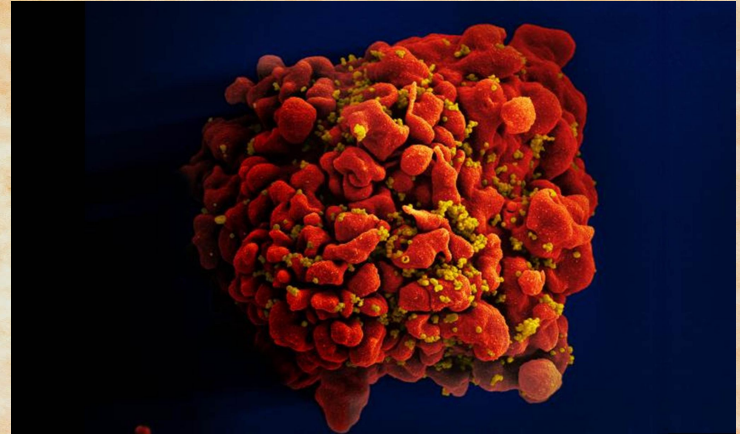
Died This Day in 1907 – Frederick Moore

- Born in 1830 in London
- Became an assistant and later a curator at the East India Company Museum in 1848
- Was a writer, illustrator, and artist
- Did the major work of compiling and illustrating Lepidoptera Indica – a catalogue of Indian butterflies
- The major work described more than 6000 species
- Also catalogued birds of India and butterflies of Sri Lanka



Elimination of Replicating HIV In Humanized Mice

- T-Cells are specific white blood cells that consume invasive particles
- HIV infects T-Cells by hi-jacking CD4 and another co-receptor on the cell
- In most strains the co-receptor is CCR5
- The CCR5- Δ 32 deletion prevents HIV from penetrating the cell membrane
- 3 patients have been cured by bone marrow transplantation from donors carrying the trait



Human Cells Were Transplanted Into Mice

- CRISPR-Cas9 was discovered in 2012
 - Bacterial immune protein for destroying viral infections
 - Captures an RNA fragment and cuts corresponding DNA
 - Creates many many ethical questions
- Researchers set out to test whether CCR5 could be altered and if HIV RNA could be removed using CRISPR
- Humanized mice were created in the lab
 - Mice were raised and bone marrow irradiated
 - Marrow cells were transferred from human cord blood

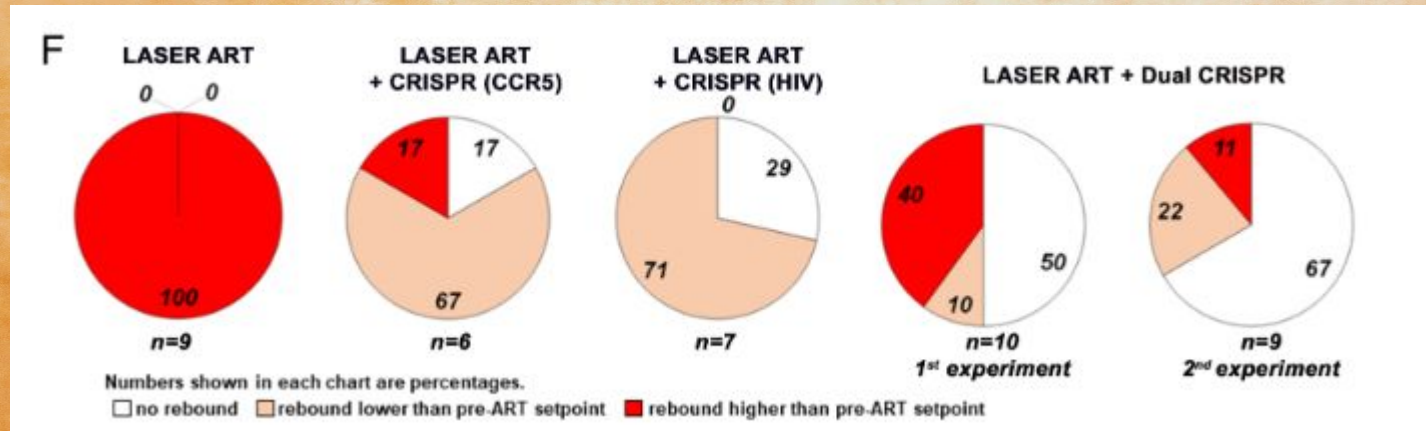
Mice Were Infected With HIV and Treated

- Mice were injected with HIV and infection was confirmed by PCR after two weeks
- Mice were put in 6 groups
 - No treatment (control group)
 - Anti-RetroViral Treatment
 - Anti-RetroViral + CRISPR of CCR5
 - Anti-RetroViral + CRISPR of HIV
 - Anti-RetroViral + CRISPR of Both
- Treatment was stopped



Some Mice Were Completely Cured of HIV

- The dual CRISPR treated mice had the highest cure rates, but all CRISPR groups were partially cured
- The authors stated that complete cure requires removal from all tissues, which isn't always possible
- Most promising in my opinion is the 29% cure rate from HIV CRISPR only



Shoutouts

Dr Roger Seheult on [Instagram](#) and [YouTube](#)

[RealWholesomeChannel](#) on TikTok for the [Pepperoni Hug Spot commercial](#)

[NeuroscienceAndYou](#) on TikTok for her explainer of the [Jennifer Aniston Neuron](#)

New Shark Species [Research Article](#)