

“Mysterious dust ring beyond Jupiter formed many of our Solar System’s earliest worlds”



In the young Solar System, a dust trap beyond Jupiter may have built wildly different meteorite parent bodies over two million years. New simulations suggest the same ring-shaped region sorted and recycled material by time, helping explain why carbonaceous chondrites differ so sharply.

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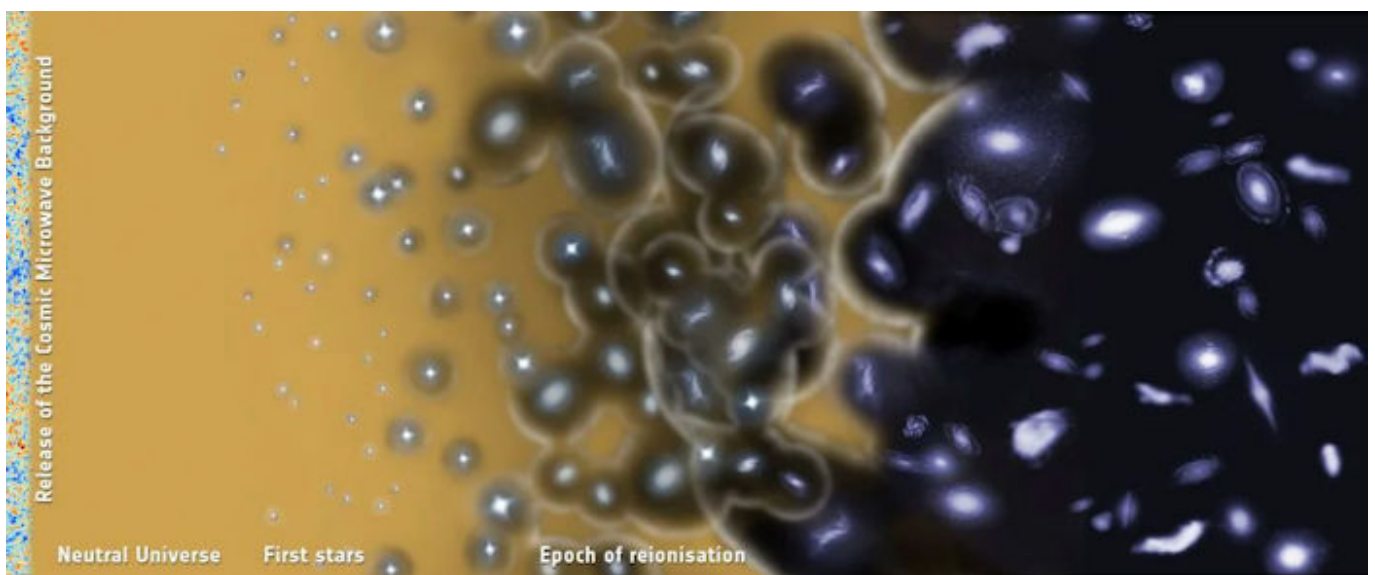
“New discovery rewrites what we know about the speed of light”



The speed of light remains one of physics' firmest assumptions, but scientists still test whether it ever shifts under extreme conditions. A new review draws together decades of observations, tightening the limits on possible departures from relativity and sharpening the next round of searches.

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“Gazing Into the Past With TIME”



There's an era in the early Universe that has been poorly studied called the Epoch of Reionization. This is when the Universe's very first stars and galaxies ionized the intergalactic medium, shifting it from opaque to translucent so light was able to travel through the Universe. A new instrument designed to study this period has released its first results. It's called the Tomographic Ionized Carbon Mapping Experiment, or TIME, and it is mounted on a 12-meter radio telescope in Arizona.

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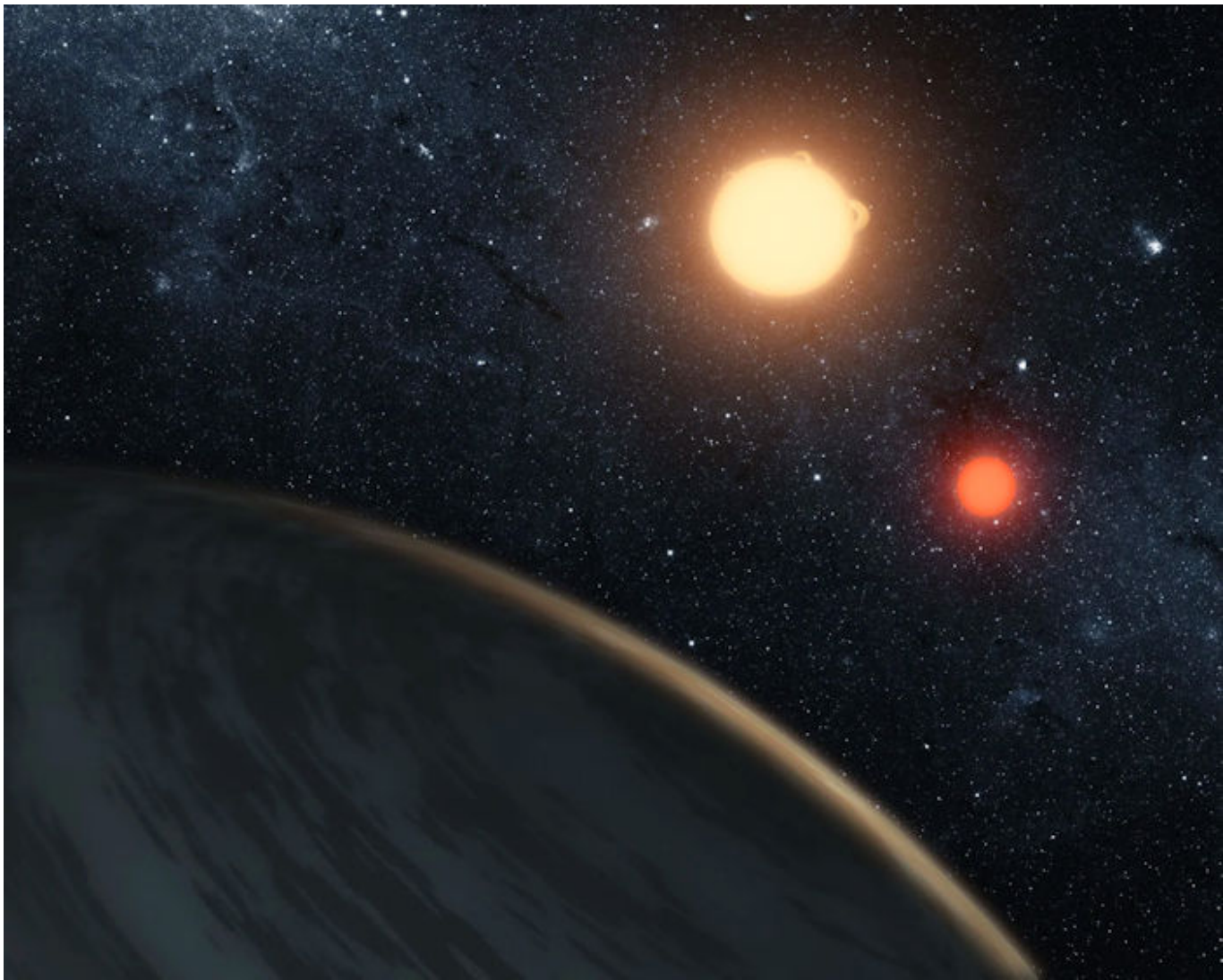
“An Explanation for the Massive Black Holes the JWST Found in the Early Universe”



When JWST began operations, it made a surprising discovery. Supermassive black holes were much heavier than previously expected in the early universe. Normally, black holes make up 0.1 to 0.5% of the mass of their host galaxy, but Webb was finding black holes with up to 30% of their galaxy mass. New research says that these overmassive black holes must be caused by direct collapse from clouds of material.

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“Astronomers Find New Circumbinary “Tatooine-like” Planet Candidates”

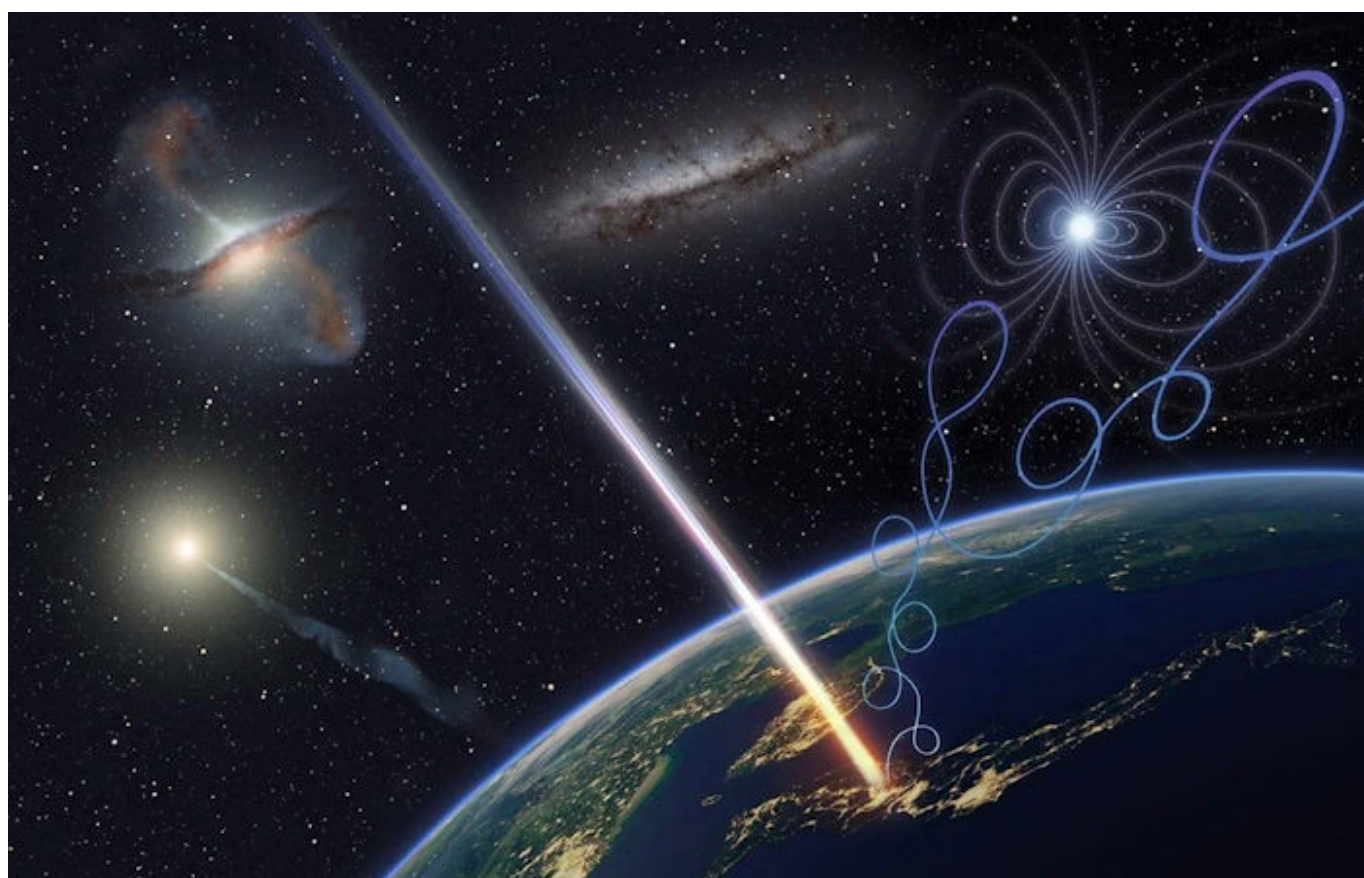


Of the more than 6,000 known exoplanets, astronomers have only found 18 circumbinary planets. This is where planets orbit two stars. Now, a team of astronomers announced that they have

found 27 more potential circumbinary planetary systems. They used a technique called apsidal precession for their finding, watching how the orbits of the stars slowly change over time due to the influence of the gravity from their planets.

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“Ultrahigh-energy Cosmic Rays May Be Ultraheavy in Origin”



The Amaterasu particle was detected by the Telescope Array Project in Utah in 2021. It was one of the highest energy

cosmic ray events ever detected, comparable to the “Oh-My-God particle” detected in 1991. So what was its cause? New research suggests an ultraheavy particle might explain the event, instead of a light particle accelerated to extremely high velocity.

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**“Just Like Stars, Open
Clusters Can Form Binary
Pairs”**



Open star clusters are beautiful objects to observe in a small

telescope with dozens or even thousands of twinkling stars. The Sun was once part of a cluster like this, but its early companions are scattered across the Milky Way. We know of at least 5,000, and there could be as many as 100,000 open clusters in the galaxy. Now, astronomers have discovered that open clusters can orbit one another, similar to how binary stars can do their gravitational dance.

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“The Name N159 Doesn’t Do This Brilliant Star-Forming Region Justice”



You're looking at an amazing image: the N159 star-forming complex located in the Large Magellanic Cloud, near the more famous Tarantula Nebula. The image was captured by the Hubble Space Telescope, revealing the star-forming region in intricate detail. You can see how powerful radiation from hot stars sculpts the nearby gas and dust, blowing bubbles that prevent new infalling material from reaching the stars. Check out the article to see Webb's version of the region.

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“The Magnetar at the Heart of a Superluminous Supernova”



Core-collapse supernovae are plenty bright, briefly outshining all the other stars in their galaxy, but they don't hold a candle to superluminous supernovae, which can be up to 100 times brighter. Astronomers have been trying to work out what explains the power behind these explosions, and recently got a clue from 16 years of observations from the Fermi Gamma-Ray Space Telescope. It seems that magnetars are involved.

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“Hubble Captures a Starry Spiral Cosmic Neighbor”



You're looking at an incredible image of the spiral galaxy NGC 3137, captured by the Hubble Space Telescope. This galaxy is 53 million light-years away in the constellation Antilia, and gives astronomers an opportunity to study the life cycle of stars in a galaxy that's similar to the Milky Way. You can see countless stellar clusters in the galaxy, places where new stars are forming inside collapsing clouds of gas and dust.

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