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# Six Interesting Astrophysics Articles (July 2012)

POSTED IN BLOG, PHYSICS, SPACE

AUG 1, 2012 NO COMMENTS YET



## 1. Astronomers Using the Hubble Space Telescope Report the Earliest Spiral Galaxy Ever Seen

ScienceDaily (July 18, 2012) — Astronomers have witnessed for the first time a spiral galaxy in the early universe, billions of years before many other spiral galaxies formed. In findings reported July 19 in the journal *Nature*, the astronomers said they discovered it while using the Hubble Space Telescope to take pictures of about 300 very distant galaxies in the early universe and to study their properties. This distant spiral galaxy is being observed as it existed roughly three billion years after the Big Bang, and light from this part of the universe has been traveling to Earth for about 10.7 billion years... [Read on](#)

## 2. Probing gravity

Phys.org (July 30-2012) — Einstein's theory of relativity is remarkable not only because it is so successful in explaining seemingly bizarre observations (like the bending of starlight) or because it has assembled a coherent picture of nature. One would expect these results from any good theory. Relativity is also amazing because it has shown that the universe behaves in completely non-intuitive ways (at least to humans): time dilates, lengths contract, gravity warps space, and mass and energy are related by  $E=mc^2$ . Our so-called "common sense" is sometimes just plain wrong... [Read on](#)

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SPACE DOCUMENTARIES

### 3. Understanding Hot Nuclear Matter That Permeated the Early Universe.

ScienceDaily (July 19, 2012) — A review article appearing in the July 20, 2012, issue of the journal *Science* describes groundbreaking discoveries that have emerged from the Relativistic Heavy Ion Collider (RHIC) at the U.S. Department of Energy's Brookhaven National Laboratory, synergies with the heavy-ion program at the Large Hadron Collider (LHC) in Europe, and the compelling questions that will drive this research forward on both sides of the Atlantic. With details that help enlighten our understanding of the hot nuclear matter that permeated the early universe, the article is a prelude to the latest findings scientists from both facilities will present at the next gathering of physicists dedicated to this research — Quark Matter 2012, August 12-18 in Washington, D.C ... [Read on](#)

### 4. Brightest Stars Don't Live Alone: Most Stellar Heavyweights Come in Interacting Pairs.

ScienceDaily (July 26, 2012) — A new study using the European Southern Observatory's Very Large Telescope (VLT) has shown that most very bright high-mass stars, which drive the evolution of galaxies, do not live alone. Almost three quarters of these stars are found to have a close companion star, far more than previously thought. Surprisingly most of these pairs are also experiencing disruptive interactions, such as mass transfer from one star to the other, and about one third are even expected to ultimately merge to form a single star ... [Read on](#)

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### 5. Two Solar System puzzles solved

Eurekalert (July 25, 2012) — Comets and asteroids preserve the building blocks of our Solar System and should help explain its origin. But there are unsolved puzzles. For example, how did icy comets obtain particles that formed at high temperatures, and how did these refractory particles acquire rims with different compositions? Carnegie's theoretical astrophysicist Alan Boss and cosmochemist Conel Alexander\* are the first to model the trajectories of such particles in the unstable disk of gas and dust that formed the Solar System. They found that these refractory particles could have been processed in the hot inner disk, and then traveled out to the frigid outer regions to end up in icy comets. Their meandering trips back and forth could help explain the different compositions of their rims. The research is published in *Earth and Planetary Science Letters* ... [Read on](#)

### 6. A Wrinkle in Space-Time: Math Shows How Shockwaves Could Crinkle Space


ScienceDaily (July 19, 2012) — Mathematicians at UC Davis have come up with a new way to crinkle up the fabric of space-time — at least in theory. "We show that space-time cannot be locally flat at a point where two shock waves collide," said Blake Temple, professor of mathematics at UC Davis. "This is a new kind of singularity in general relativity." The results are reported in two papers by Temple with graduate students Moritz Reintjes and Zeke Vogler, respectively, both published in the journal *Proceedings of the Royal Society A*... [Read on](#)

TOP PICKS

*Image description: Galaxy BX442 and its companion dwarf galaxy.*

*Image Credit: Dunlap Institute for Astronomy & Astrophysics/Joe Bergeron.*

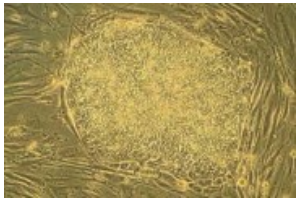
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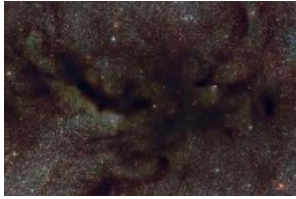
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### Six Interesting Articles on the Human Mind (Aug 2012)

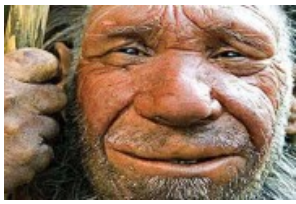
1. Neuroscientists Find Brain Stem Cells that May Be Responsible for Higher Functions, Bigger Brains Neuroscience News (Aug. 16th 2012) Scientists from The Scripps Research Institute have identified a new stem cell population that may



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### Curious Dark Nebula Seen as Never Before

Click image for full size!! Just as René Magritte wrote "This is not a pipe" on his famous painting, this is also not a pipe. It is however a picture of part of a vast



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### Six Interesting Articles on Evolution (Aug 2012)

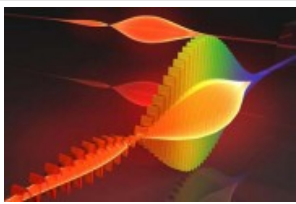
1. Neanderthal breeding idea doubted BBC News (Aug. 13, 2012) – Similarities between the DNA of modern people and Neanderthals are more likely to have arisen from shared ancestry than interbreeding, a study reports. That



AUGUST 13TH, 2012, NO COMMENTS YET

### Six Interesting Space Stories (Aug 2012)

1. NASA Planetary Lander Project to Continue After Fiery Crash Space.com (Aug. 9, 2012) – NASA engineers are forging ahead on work with an experimental planetary lander after a test vehicle's crash Thursday (Aug. 9),



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### Six Interesting Physics Stories (Aug 2012)

1. Photon shape could be used to encode quantum information PhysicsWorld (Aug. 10, 2012) An international team of researchers has succeeded in measuring the shape of individual photons for the first time. The result could



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