

Best of Last Week – trapping light forever, turning paleontology on its head and a promising anti-aging drug

November 16 2015, by Bob Yirka

Two pages from the book "Arithmetica Infinitorum," by John Wallis. In the table on the left page, the square that appears repeatedly denotes $4/\pi$, or the ratio of the area of a square to the area of the circumscribed circle. Wallis used the table to obtain the inequalities shown at the top of the page on the right that led to his formula. Credit: Digitized by Google

(Phys.org)—It was an interesting week for physics as a pair of researchers in Portugal announced an idea for [a device that could theoretically trap a light 'bit' for an infinite amount of time](#)—by shining it on a spherical "metal-atom" rather than by using mirrors. A team at [NIST proved that 'spooky action at a distance' actually exists](#)—by constructing an experiment that closed the three major loopholes necessary for such a proof. Also, researchers at the University of Rochester found [a new derivation of pi that links quantum physics and pure math](#) while calculating energy levels for a hydrogen atom, and were completely surprised at what they found.

In news from space, a team at the University of Warwick measured [5400 mph winds hurtling around an exoplanet](#)—planet HD 189733b, that is—marking the first time a weather system on a planet outside of Earth's solar system has been mapped. A team working with NASA's Fermi Gamma-ray Space Telescope mission [found hints of gamma-ray cycle in an active galaxy](#)—providing new insights into the physical processes that occur near a black hole. And an international team of astronomers announced that they had discovered [the oldest stars ever seen in our galaxy](#).

In other news, a team of researchers from the U.S. and Germany conducted lab experiments that showed that [dispersants did not help oil degrade in the BP Deepwater Horizon spill](#)—and in some instances, actually made things worse. Also, some good news from researchers with the University of Leicester—they announced that [the world's-first blood cancer drug trial revealed life-changing results](#). The drug, called, ONO/GS-4059, has been undergoing trials on human patients with chronic lymphocytic leukemia and other blood cancers. An international team of researchers used [520-million-year-old arthropod brains to turn paleontology on its head](#)—by proving that brains can, and do in fact, fossilize.

And finally, if you have been hoping that scientists would discover a way to prevent aging in your lifetime, hope may be on the horizon as a team of researchers with the Salk Institute discovered that [an experimental drug targeting Alzheimer's disease showed anti-aging effects](#)—when mice were given the drug, called J147, they showed improvements in memory, cognition and blood vessel structure in the brain.

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