Best of Last Week – quantum pigeonholing, a hoverbike drone project and the sun goes quiet

July 28 2014, by Bob Yirka

Credit: Wikipedia

(Phys.org) —Midsummer has found the physics community in a contemplative if not esoteric mood as Physicists discuss quantum

pigeonhole principle—if you take three pigeons and put them in two holes, then you're going to wind up with two birds sharing one hole, no matter how you try to arrange things. But an international panel of scientists describes a scenario where putting three quantum particles in two quantum boxes does not always result in two particles sharing one box. Also, another university professor has found that a Law of physics governs airplane evolution—he claims a law of physics he came up with ten years ago, describes not only natural evolutionary processes, but those of the evolution of technology, such as aircraft design.

In more practical science, at team at the University of Michigan is working on Creating optical cables out of thin air—they believe they have found a way to make air work as a virtual optical fiber, directing light as it travels long distances without losing power. Meanwhile, Commercial Dream Chaser closer to critical design review and first flight. The mini-shuttle has completed a series of milestones and is moving steadily toward the goal of getting the U.S. back in the manned space flight business.

In a bit of unsettling biological news, a team of researchers found that Sewage treatment contributes to antibiotic resistance—apparently mixing human and farm waste together allows the bugs to swap genes making them more resistant to drugs aimed at killing them.

More optimistically, maybe instead of wondering when we'll all be zipping around via jetpack, we should note that a Hoverbike drone project for air transport takes off—sort of like a larger version quadcopter for us to ride like an air bicycle. The researchers think it can work and have begun a Kickstarter project hoping to find out. Also, *Universe Today* founder Frasier Cain wonders How do we terraform Venus? Not as a refuge in case we destroy our own planet, but as a possible future vacation spot. It wouldn't be easy he concludes. Also, Suddenly, the sun is eerily quiet: Where did the sunspots go? Nobody

seems to know, but space scientists assure us it's nothing to worry about.

And finally for those who have been wondering why they can't remember minutia from the day before sometimes, it might be, Michigan State researchers suggest, because Missing sleep may hurt your memory.