

# Best of Last Week – Smoother dark matter, collecting space junk and the health benefits of nuts

December 12 2016, by Bob Yirka

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A timeline of co-decaying dark matter: the standard model and dark sector decouple at  $T_d$ , the dark sector density begins to decrease at  $T_\Gamma$ , and dark matter “freezes out” at  $T_f$ , resulting in a relic abundance. Credit: Dror et al. ©2016 American Physical Society

(ScienceX)—It was another good week for physics as a team in the U.S.

found that ['spooky' sightings in a crystal pointed to an extremely rare quantum spin liquid](#)—a rare new material that was synthesized for the first time just a year ago. Also, a team working at the ESO's VLT Survey Telescope in Chile found evidence suggesting that [dark matter may be smoother than expected](#)—or, as they describe, more smoothly distributed and less dense. Meanwhile, another team at Cornell University presented [the case for co-decaying dark matter](#) to explain dark matter freeze-out or why there is less dark matter today than there was in the past.

There was also space news as a team with Japan Aerospace Exploration Agency announced that they had launched [a cargo ship carrying a 'space junk' collector](#)—the experimental device will work from the International Space Station using a tether to slow space junk causing it to fall to Earth. Also, it was noted that with the passing of John Glenn, [all 'Original Seven' American astronauts are now dead](#). Known as the Mercury 7, the astronauts paved the way for future American endeavors in space. And University of Connecticut engineering professor Brice Cassenti offered some insight into a research paper released by NASA recently, detailing work on [the study of a paradoxical EM propulsion drive](#)—one that could theoretically take astronauts to Mars in just 70 days.

In other news, a team of researchers at Michigan State University announced that they had developed [a flexible device capturing energy from human motion](#)—allowing small devices to be used without charging or batteries. Also, a team at Northwestern University released their findings of a study that showed that [the rhythm of breathing affects memory and fear](#)—due to changes in electrical activity in the brain. And another team at the University of Illinois announced [a new discovery that may lead to the development of a super premium gasoline](#)—one that could flow up to 30 times faster, allowing a car to fill up in just seconds.

And finally, if, like most people, you would like to live a longer, healthier life, you might be interested in the results of a study by a combined team of researchers from Imperial College London and the Norwegian University of Science and Technology—they found that [a handful of nuts a day cuts the risk of a wide range of diseases](#) such as cancer and heart disease and reduces the risk of premature death by 22 percent.

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