

Best of Last Week—Power of quark fusion, alcohol killing brain stem cells and sleep deprivation causing mental problems

November 13 2017, by Bob Yirka

Schematic depiction of quark-level exothermic fusion reactions $\Lambda Q \Lambda Q' \rightarrow \Xi Q Q' N$, where $Q, Q' \in \{b, c\}$. Credit: (c) *Nature* (2017). DOI: 10.1038/nature24289

(ScienceX)—It was another good week for physics as a pair of researchers with Tel Aviv University and the University of Chicago

found that [theoretical quark fusion could be more powerful than hydrogen fusion](#)—their study of fusing quarks to make doubly-charmed baryons showed that doing so released more energy than fusing hydrogen atoms. Also, [a team of physicists developed a device that could provide conclusive evidence for the existence \(or not\) of non-Abelian anyons](#)—the device created by the team at UC Santa Barbara was based on graphene, but before it can be used, a means of measuring the quasiparticles must be found. In somewhat related news, [officials with IBM said they have a reached milestone in quantum computing](#)—building a working 50 quantum bit processor.

In news regarding planet Earth, a team with NASA conducted [a study that bolsters a theory of a heat source under Antarctica](#)—a likely mantle plume deep below Antarctica's Marie Byrd Land. Also, a group of scientists found [a potential 'missing link' in the chemistry that led to life on Earth](#). The team with the Scripps Research Institute identified the compound as diamidophosphate, suggesting it could have been the key ingredient in a phosphorylation chemical reaction. And a pair of researchers with Tohoku University conducting [a new analysis of the Chicxulub asteroid suggested it may have struck in a vulnerable spot](#)—an area particularly dense in hydrocarbons.

In other news, a team with the University of Cincinnati discovered [a rare Minoan sealstone in the treasure-laden tomb of a Bronze Age Greek warrior](#) in southwest Greece. Also, a team at the University of Texas Medical Branch at Galveston found that [frequent alcohol drinking kills new brain cells in adults and that females are more vulnerable](#) to stem cell damage. And a team at Duke University found that [Bonobos help strangers without being asked](#)—they conducted experiments that showed that the chimp-like apes were willing to help others get food even if there was no reward in it for them.

And finally, If you are someone burning the midnight oil hoping to get

ahead in this world, you might be interested in a study conducted by an international team of researchers who found that [sleep deprivation disrupts brain-cell communications](#), leading to mental and memory lapses and altered perception.

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