

# **Best of Last Week – LHC readied for big run, human exodus likely due to climate change and gut benefits of coffee/wine**

May 9 2016, by Bob Yirka

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Researchers propose that the three dimensions of space may have been “frozen in” during the early moments of the universe. (Left) The Helmholtz free energy density ( $f$ ) reaches its maximum value at a temperature  $T = 0.93$ , which occurs when space had  $n = 3$  dimensions. ( $s$  and  $u$  represent entropy density and internal energy density, respectively.) (Right) Transitions to different dimensions cannot occur below a temperature of 0.93, corresponding to three dimensions. Credit: Gonzalez-Ayala et al. ©2016 *EPL*

(ScienceX)—It was a good week for physics as a pair of researchers, Julian Gonzalez-Ayala and F. Angulo-Brown asked, [why is space three-dimensional](#)? They suggest that the second law of thermodynamics may yield the answer. Also, it was announced that the [world's largest particle smasher was set to push physics into the unknown](#)—the team at CERN announced that the LHC is being readied for its biggest run yet, and the news has [set physicists abuzz about a possible new particle](#), one that could very well upend the very nature of our most basic understanding of physics. And a team in Germany announced that they had [made 3-D holograms of atoms inside molecular structures](#)—the first imaging technique to do so.

In [space](#) news, SpaceX celebrated after [successfully landing a rocket on a platform at sea for the second time, after a satellite launch mission](#). Also, an international team of astronomers suggested that [three planets might host life forms adapted to infrared worlds and they are only 40 light years from Earth](#). The three exoplanets orbit a dwarf star and have Earth-like temperatures.

In other news, a combined team of researchers with the Max Planck Institute for Chemistry and the Cyprus Institute announced that they had found that [a climate exodus is expected in the Middle East and North Africa](#)—as the climate changes, people are expected to move, particularly in regions that may become too hot to be habitable. In related news, a team of Australian Earth scientists reported that [sea-level rise has claimed five islands in the Pacific Solomon Islands](#)—and an additional six reefs have been severely eroded. A team of researchers from several institutions in the U.S. concluded, after studying the connection between chemicals often used in cosmetics and birth outcomes, that [using personal care products while pregnant can be linked to adverse effects in babies](#).

And finally, if you are both a wine and coffee drinker, there is good

news for you, as a team working in the Netherlands reported that [drinking coffee and wine is good for microbes in the gut](#)—it leads, they claim, to a healthier and more diverse community of the kinds of microbes in the GI tract that are beneficial.

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