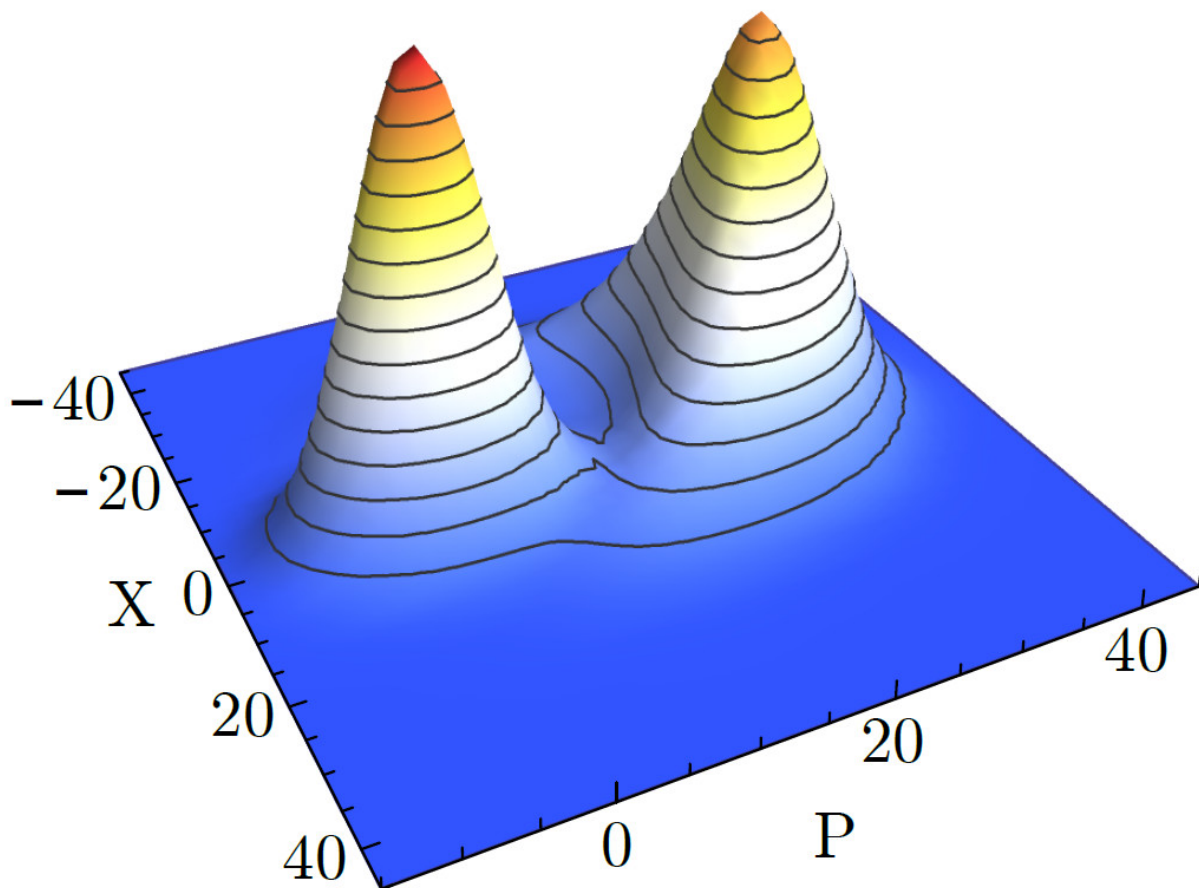


# Best of Last Week – Quantum phase transition observed, lost continent found and the health impact of thirdhand smoke

February 6 2017, by Bob Yirka

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Probability distribution showing the equal likelihood for the cavity being transparent and opaque at the critical point. Credit: J. Fink

(ScienceX)—It was another good week for physics as a team at Brown University [pushed the concept of entropy out of kilter](#) by conducting an experiment in which the emergence of a non-equilibrium phenomenon required an entropic assist. Also, a team with members from Switzerland, Austria and Hungary reported on experiments they conducted in which [a quantum phase transition was observed for the first time](#) in a dissipative quantum system. And an international team of researchers unveiled [the first-ever blueprint to construct a large-scale quantum computer](#)—in addition to offering a means for actually creating such a machine, the design featured a new invention that allows quantum bits to be transmitted between modules.

In news from space, a [team](#) of researchers with members from Canada, the U.K. and Italy described a study they carried out in which they claimed they found [substantial evidence of a holographic universe](#). Also, NASA released images of [close views showing Saturn's rings in unprecedented detail](#), courtesy of the Cassini space probe. And a team at Northwestern University found [a change in an astronaut's gut bacteria attributed to spaceflight](#)—they have been studying the impact of prolonged spaceflight by comparing physical characteristics of twin astronauts Mark and Scott Kelly.

In other news, a trio of researchers with University of the Witwatersrand in South Africa made headlines by announcing that they had confirmed [the existence of a 'lost continent' under Mauritius](#) in the Indian Ocean. Also, a team of researchers at Lawrence Berkeley National Laboratory found that [third-hand smoke affected weight and blood cell development in mice](#) that were not exposed to smoke, but instead lived in cages that had smoky residue. And a team of [researchers](#) from China and the U.K. announced that they had found evidence of [a bag-like sea creature that was humans' oldest known ancestor](#)—it lived approximately 540 million years ago in what is now modern China.

And finally, if you are someone who prides themselves on putting in long hours at the office, you might be interested in a report by a team with the Australian National University—they found that [a healthy work limit is 39 hours per week](#)—any more than that, they claim, puts people at risk for health problems.

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