

POST

Google announces . . .

July 31, 2021

perhaps the greatest scientific discovery of this century---Time Crystal created in a Quantum Computer

Google and Stanford just announced perhaps the greatest scientific discovery of this century so far (<https://r20.rs6.net/tn.jsp?f=001pvecTbzgDEBdELsHR-OdhFHmh4ulyai-o8gadLvpBdoXAgy98dlHn2ADCCbgtR3b1no3hV5kTq2iNM19OtDFMNRb6Az92uB3d5g0x1X7RVPkCfGVpqwPm2eJqGC1CTqNmxbn3O214IytCWaUducRdtW43fAzUmg&c=&ch=>). Using a quantum computer, they appear to have created a new state of matter and also given the middle-finger to Isaac Newton (we might need to put an asterisk on the First Law of Motion).

“Time Crystals” were first conceived as theoretically possible by Nobel Laureate Frank Wilczek back in 2012 (https://r20.rs6.net/tn.jsp?f=001pvecTbzgDEBdELsHR-OdhFHmh4ulyai-o8gadLvpBdoXAgy98dlHn2ADCCbgtR3bAvRqqwNf_bZobZl_rQO5UJ-MWK3YwpUHSgrqVA3vnxPfbNLlnrouYQ6kJSiJNAzBYs3-gxyfsZSB9p6g_ux3pj4mxafe5XXVARXDkSDlSZgTSUzXiK5aTA==&c=&ch=), I’ll let you learn about this phenomena and think about the implications for environmental protection on your own. I will point out however that Nobel Laureate Richard Feynman is probably smiling from heaven that a quantum computer was used to help discover this phenomena (see quote below).

I CANNOT OVEREMPHASIZE TO YOU WHAT QUANTUM COMPUTING/SENSING/COMMUNICATION WILL LIKELY MEAN TO UNDERSTANDING AND PROTECTING PROBABILISTIC SYSTEMS LIKE THE

ENVIRONMENT. That is why the Quantum AI Environmental Protection machine we are building at EnviroAI will rely so heavily on this technology.

Recipe for a Time Crystal

A time crystal is a newly realized phase of matter in which particles move in a regular, repeating cycle without burning any energy. The phase arises through a combination of three special ingredients.

MANY-BODY LOCALIZATION

A row of particles, each with a magnetic orientation, or "spin," will ordinarily settle into an arrangement with the lowest possible energy. But random interference can make the particles get stuck in a higher-energy configuration. The effect is called **many-body localization**.



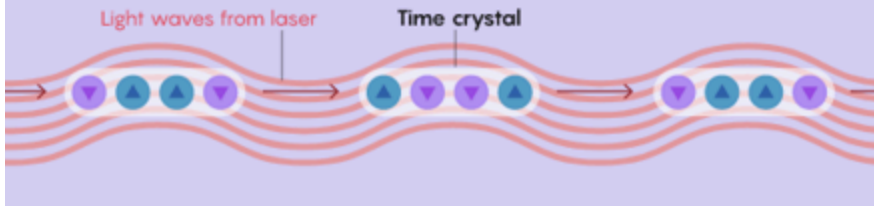
EIGENSTATE ORDER

Many-body localized systems can exhibit a special kind of order: If you flip all the spins in the system, you get another stable, many-body localized state.



PERIODIC DRIVER

If you drive the system with a laser, it will forever cycle between states without absorbing any net energy from the laser. It has formed a time crystal.



Quantum AI Protection System

---“Nature isn’t classical, dammit, and if you want to make a simulation of Nature, you’d better make it quantum mechanical, and by golly it’s a wonderful problem, because it doesn’t look so easy.”-Richard Feynman

---“We are beginning now to be able to simulate how nature really works—the probabilistic nature of reality that underlies classically observed systems.”- Jed Anderson



---“Nature . . . quantum.

Computer , , , quantum.

Computing nature . . . quantum.”

- Jed Anderson, Creator, EnviroAI

BUILDING

A MACHINE

TO PROTECT

EARTH USING

AI & QUANTUM

TECHNOLOGIES



[Approach \(click here\) \(https://r20.rs6.net/tn.jsp?f=001pvecTbzigDEBdELsHR-OdhFHmh4ulya
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Game-Plan (click here) ([https://r20.rs6.net/tn.jsp?f=001pvecTbzigDEBdELsHR-OdhFHmh4ul
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---“The earth is what we all have in common.”

—Wendell Berry

EnviroAITM

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Original source: Constant Contact campaign

Markdown source: <https://jedanderson.org/posts/google-announces.md> (https://jedanderson.org/posts/google-announces.md)

Source on GitHub: [/src/content/posts/google-announces.md](https://github.com/jedanderson432/jedanderson-site/blob/main/src/content/posts/google-announces.md) (https://github.com/jedanderson432/jedanderson-site/blob/main/src/content/posts/google-announces.md)