**Bacteria: The Electric Body**

We have a two-sided relationship with bacteria. On one hand, these single-celled organisms are the source of disease. On the other, each of us hosts some [40 trillion](https://www.sciencenews.org/article/body%E2%80%99s-bacteria-don%E2%80%99t-outnumber-human-cells-so-much-after-all) bacteria in our own personal biomes — some estimates suggest we’re [90% bacteria, 10% human](http://bigthink.com/amped/humans-10-human-and-90-bacterial). However many there are, these fellow travelers help us break down our food, [affect our emotions](http://bigthink.com/videos/emeran-mayer-on-depression-and-the-mind-gut-connection), and play a part in our lives that we’re just beginning to comprehend. In fact they’re so important in both roles — just last month, [a woman died](http://bigthink.com/robby-berman/a-woman-just-died-from-an-infection-no-us-antibiotics-could-beat) from a bacterial infection that overcame *all* of the available antibiotics — we can hardly know enough about them. And now [a new study published in *Cell*](http://www.cell.com/cell/abstract/S0092-8674%2816%2931728-7?_returnURL=http%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0092867416317287%3Fshowall%3Dtrue) says they can communicate with other *electrically* at a distance.

Scientists at University of California, San Diego were interested in the behavior of bacteria in [biofilms](https://en.wikipedia.org/wiki/Biofilm). A biofilm is a bacterial community, a thin, slimy layer where bacteria have attached themselves onto something.



Biofilms can be found in lots of places, including, for example, plaque on your teeth. Biofilms are believed to be responsible for [80% of all microbial infections](http://pubs.acs.org/doi/abs/10.1021/ab5000578), and they’re tricky to treat, since each one can contain multiple bacterial strains: There’s no guarantee that an antibiotic that addresses one will address them all.

[Previous research](http://www.nature.com/nature/journal/v527/n7576/abs/nature15709.html) had demonstrated that bacteria could pass information back and forth, much the way neurons do, through small pores, [*ion channels*](https://en.wikipedia.org/wiki/Ion_channel), that pass electrically charged potassium molecules between them. This allows potassium-hungry bacterial cells on the inside of a biofilm to signal outer cells to stop scarfing up all of the available nutrient.

What’s amazing about the new research is that apparently bacteria in a biofilm can call out to other bacteria elsewhere in a body, sending a sort of eVite to come join and strengthen the community.

What happens is that the potassium ions don’t stop at the biofilm’s edge — they continue to spread outward. The team at UC San Diego combined lab experimentation using microfluidic growth chambers and tracking dyes along with computer modeling. The researchers found that a species of Bacillus subtilis bacteria was able to recruit Pseudomonas aeruginosa through electric signaling.

([SÜEL LAB](http://labs.biology.ucsd.edu/suel/))

It looks like potassium ions are common currency for all types of cells. Study team member Jacqueline Humphries told [*The Atlantic*](https://www.theatlantic.com/science/archive/2017/01/bacteria-electrical-pulse/512825/), “It allows species to communicate across evolutionary divides and create mixed communities."

There may be a much more complex interaction between the various kinds of bacteria in the biome than was previously recognized since, as lead researcher [Gürol Süel](http://labs.biology.ucsd.edu/suel/) told the [*UC San Diego News Center*](http://ucsdnews.ucsd.edu/pressrelease/bacteria_recruit_other_species_with_long_range_electrical_signals), “bacteria within biofilms can exert long-range and dynamic control over the behavior of distant cells that are not part of their communities.”

This is a big change to the way in which scientists view these not-so-simple-after-all creatures. In terms of medical treatment, for example, the new understanding of how biofilms — like staph infections — come together could lead to figuring out how to break them apart.

Süel continues, “Our latest discovery suggests that the composition of mixed-species bacterial communities, such as our gut microbiome, could be regulated through electrical signaling. It may even be possible that bacterial and human gut cells can interact electrically within the human gut. Our work may in the future even lead to new electrical-based biomedical approaches to control bacterial behavior and communities.”

**The Purge Continues**

Warning that the deadly rampage of the Capitol this month may not be an isolated episode, the Department of Homeland Security on Wednesday said publicly for the first time that the United States faced a growing threat from “violent domestic extremists” emboldened by the attack.

©

The department’s terrorism alert did not name specific groups that might be behind any future attacks, but it made clear that their motivation would include anger over “the presidential transition, as well as other perceived grievances fueled by false narratives,” a clear reference to the accusations made by President Donald J. Trump and echoed by right-wing groups that the 2020 election was stolen.

“D.H.S. is concerned these same drivers to violence will remain through early 2021,” the department said.

The Department of Homeland Security does not have information indicating a “specific, credible plot,” according to a statement from the agency. The alert issued was categorized as one warning of developing trends in terrorism, rather than a notice of an imminent attack.

But an intelligence official involved in drafting Wednesday’s bulletin said the decision to issue the report was driven by the department’s conclusion that Mr. Biden’s peaceful inauguration last week could create a false sense of security because “the intent to engage in violence has not gone away” among extremists angered by the outcome of the presidential election.

The warning contained in a [“National Terrorism Advisory System Bulletin”](https://www.dhs.gov/sites/default/files/ntas/alerts/21_0127_ntas-bulletin.pdf) was a notable departure for a Department of Homeland Security accused of being reluctant during the Trump administration to publish intelligence reports or public warnings about the dangers posed by domestic extremists and white supremacist groups for fear of angering Mr. Trump, according to current and former homeland security officials.

Starting with the deadly extremist protest in Charlottesville, Va., in 2017, when Mr. Trump said there were “very fine people on both sides,” he played down any danger posed by extremist groups. And when racial justice protests erupted nationwide last year, his consistent message was that it was the so-called radical left that was to blame for the violence and destruction that had punctuated the demonstrations.

Even after the Department of Homeland Security in September 2019 singled out white supremacists as a leading domestic terrorism threat, analysts and intelligence officials said their warnings were watered down, delayed or both. Former officials in the Trump administration have even said that [White House officials sought to suppress the phrase “domestic terrorism.”](https://www.nytimes.com/2020/09/01/us/politics/trump-homeland-security-extremism.html)

As recently as last September, a former top intelligence official with the department, [Brian Murphy](https://www.nytimes.com/2020/09/11/us/politics/whistle-blower-homeland-security.html), [filed a whistle-blower complaint](https://www.nytimes.com/2020/09/09/us/politics/homeland-security-russia-trump.html) accusing department leaders, including the acting secretary, Chad F. Wolf, and his deputy, Kenneth T. Cuccinelli II, of ordering him to modify intelligence assessments to make the threat of white supremacy “appear less severe” and include information on left-wing groups to align with Mr. Trump’s messaging.

Mr. Wolf and Mr. Cuccinelli [denied the accusations](https://www.nytimes.com/2020/09/23/us/politics/chad-wolf-homeland-security.html), and after a congressional backlash, released an [annual threat assessment](https://www.nytimes.com/2020/10/06/us/politics/homeland-security-white-supremacists-russia.html) in October that acknowledged that violent white supremacy was the “most persistent and lethal threat in the homeland.”

The intelligence official involved with the bulletin, who spoke on the condition of anonymity to discuss its findings, added that the public warning should have been issued as early as November, when Mr. Trump was making an escalating series of false accusations about the election, and that far-right groups continued to be galvanized by such false statements.

But at the time, Mr. Trump was also seeking to dismiss department officials whom he regarded as disloyal, [including Christopher Krebs, the chief of its cybersecurity agency,](https://www.nytimes.com/2020/11/17/us/politics/trump-fires-christopher-krebs.html) after a committee overseeing the election declared it had been “the most secure in American history.” The agency failed to issue a warning to state and local agencies warning of specific violence aimed at the Capitol before the attack on Jan. 6.

The report listed a broad range of grievances across the political spectrum, including “anger over Covid-19 restrictions, the 2020 election results, and police use of force.” And left-wing groups have not been silent: After the inauguration of Mr. Biden, some demonstrators in Portland, Ore., shattered windows and targeted a federal building with graffiti.

But the bulletin’s specific references to the Jan. 6 attack and a [mass shooting in El Paso that targeted Hispanics](https://www.nytimes.com/2019/08/03/us/el-paso-shooting.html?module=inline) made clear that the most lethal current threat is from the racist extremist groups.

Until now, the closest federal law enforcement had come to that conclusion since the attack at the Capitol was in a joint bulletin issued this month by law enforcement agencies, warning that extremists aiming to start a race war “may exploit the aftermath of the Capitol breach by conducting attacks to destabilize and force a climactic conflict in the United States,” [according to a copy of the bulletin obtained by The New York Times.](https://www.nytimes.com/2021/01/13/us/fbi-police-threats-inauguration.html)

But that warning came in a private channel to law enforcement agencies. Terrorism warnings issued to the public like the bulletin on Wednesday are rare: The most recent came a year ago during a period of tension with Iran after the American military’s killing of Maj. Gen. Qassim Suleimani.

The bulletins issued by the Department of Homeland Security, which was created after the Sept. 11, 2001, attacks, have typically identified foreign terrorist threats. Federal authorities have for years lagged on warnings about the threat of terrorism from within United States borders, perpetrated by American citizens.

“There’s value in soliciting the public’s assistance in identifying and alerting authorities about suspicious activity,” said Brian Harrell, a former assistant secretary for homeland security in the Trump administration. “The watchful public will always be the best ‘eyes and ears’ for law enforcement.”

Asked during a briefing about the motivation for the new terrorism bulletin, Michael Chertoff, a former secretary of homeland security under President George W. Bush, said, “In my view, it is domestic terrorism mounted by right-wing extremists and neo-Nazi groups.” He added, “We have to be candid and face what the real risk is.”

Such candor has long been an exception.

When a warning in a 2009 Department of Homeland Security report, early in the Obama administration, that military veterans returning from combat could be vulnerable to recruitment by terrorist groups or extremists prompted a backlash from conservatives, the homeland security secretary at the time, Janet Napolitano, was forced to apologize.

The report was retracted and an edited version was eventually reissued.

“It was an early lesson in how fraught dealing with these issues can be, but it turns out the report itself and the substance of the report was quite prescient,” Ms. Napolitano said in an interview. “What we saw two weeks ago is what I think we were seeing in 2009, but it has only grown and it seems to have exploded in the last four years.”

This week, Mr. Biden ordered a comprehensive assessment of the threat of domestic violent extremism. During his confirmation hearing, the president’s pick for homeland security secretary, Alejandro N. Mayorkas, said he would empower the department’s intelligence branch, which has long struggled to distinguish its assessments from the F.B.I.

The department’s Office of Intelligence and Analysis is responsible for gathering information on emerging threats and sharing it with state authorities to bolster coordination among federal and local law enforcement.

“The truth is what has to come out of D.H.S,” Mr. Chertoff said. “Not playing patty cake with political agendas.”

**Naked Short Wars**

If you have listened to my program over the years, I have addressed the activities of the scourge of Wall Street; the naked short traders. These are large cap players who sell stock for reduced prices in companies they do not own. Buying companies short has been around since stock was invented, but naked selling is a crime.

More than 10 thousand small businesses that raise money on the public markets have been targeted and destroyed by naked short traders. This is how it works.

A small company relies on the price of its shares to borrow against or to sell into the market from time to time for capital or cash flow or general fund support. Anything like a fire, an accident, a resignation, or some lawsuit can impact the price of the shares, and that is the way it’s supposed to happen. But, when a hedge fund or a large bank decides that the stock is overpriced, they can sell phantom shares into the market at lower prices with an option that the price on the market will slide lower. If it goes down, they don’t have to deliver the shares, and they make a profit But, if the stock goes up, the short trader gets caught between a rock and a hard place. They have to buy the shares off the market. That causes the share price to go up, which can exacerbate their losses exponentially. It get even worse, if people get wind of the run, and they compete against the hedge fund for the shares.

Thousands of people were made millionaires this week when this happened to Game Stop shares being viciously naked shorted on the market. The hedge fund tried to stop themselves from bleeding out by pressuring the retailers to stop letting consumers to buy the stock. Robinhood responded to the pressure and stopped their app holders from buying the shares. They could sell, but they could not buy.

Consumers responded by dumping their accounts and the app within seconds. That burned up Robinhood capital, and sent them scrambling for $1 billion to cover the losses. Consumers see a chance to stab the much-hated hedge fund owners in the heart, and they are taking it. They organized on Reddit and Discord for solidarity to get the Game Stop share price as high as possible, forced by the Hedge fund’s legal requirement to deliver the shares that don’t otherwise exist.

I predicted that the Hedge fund would then go to Congress for help. After all, they are the ones who finance campaigns. Lots of them. No sooner did the Sun rise this morning, but that is exactly what happened. All is not peace and tranquility in Washington, due to the larceny of the White House by the Democrats.

Both Rep. Alexandria Ocommunist-Cortez (D-NY) and Sen. Ted Cruz (R-TX) are among lawmakers seemingly calling for congressional action after Robinhood restricted trading for GameStop following a surge spurred by a populist investing movement, but the New York lawmaker rejected Cruz after he agreed with her on social media, telling the senator to “sit this one out” because, she claimed, he almost had her “murdered” three weeks ago — a reference to the January 6 Capitol riot.

“This is unacceptable. We now need to know more about [@RobinhoodApp](https://twitter.com/RobinhoodApp)’s decision to block retail investors from purchasing stock while hedge funds are freely able to trade the stock as they see fit,” Ocommunist-Cortez said following news of Robinhood [restricting](https://www.breitbart.com/politics/2021/01/28/donald-trump-jr-blasts-rigged-system-after-robinhood-blocks-gamestop-trades/) trading.

“As a member of the Financial Services Cmte, I’d support a hearing if necessary,” she added, prompting Cruz to publicly express his agreement, which was not welcomed by the far-left “Squad” member:

“I am happy to work with Republicans on this issue where there’s common ground, but you almost had me murdered 3 weeks ago so you can sit this one out,” she snapped, adding that she is happy to work with “almost any other GOP” member who is not “trying to get me killed.”

“In the meantime if you want to help, you can resign,” she added:

While Ocommunist-Cortez and Cruz have attempted to [find](https://www.theguardian.com/us-news/2019/may/30/aoc-ted-cruz-lobbying) common ground in the past, the New York lawmaker is among Democrats who blame Cruz, at least in part, for the Capitol riot that took place on January 6 as Congress gathered to certify the electoral vote.

Cruz was one of the GOP lawmakers leading the effort in formally objecting to certification in disputed states — a move progressives claim fueled violent insurrectionists. Neither Cruz, nor his GOP colleagues such as Sen. Josh Hawley (R-MO), called for violence or lawlessness, nor did former President Trump. Despite that, Democrats in the House impeached the former president for incitement of insurrection.

Ocommunist-Cortez has repeatedly [called](https://www.breitbart.com/politics/2021/01/08/aoc-demands-cruz-hawley-resign-senate-should-move-expulsion/) on Cruz to resign since.

“Leading a debate in the Senate on ensuring election integrity is doing our jobs, and it’s in no way responsible for the despicable terrorists who attacked the Capitol yesterday,” Cruz told the congresswoman on the day following the protest, promising Ocommunist-Cortez and her “socialist buddies” that he “ain’t going anywhere.”

What is the point of all this? Simple: for all its tremendous success, *r/WallStreetBets*has not discovered anything that was not known long ago. It did however succeed in creating what has become the **world's biggest daytrading army**which, most importantly, is well organized and works as a collective "hive mind." And, at 6 million users strong, or up a record 2 million users in the past 24 hours...

With that said, and well before this week's short squeeze insanity, last Friday when all eyes were only on Gamestop which soared after short seller Andrew Left conceded in his feud with redditors, which sent the company soaring [we had some advice for our readers](https://www.zerohedge.com/markets/so-you-missed-todays-epic-move-gamestop-heres-how-catch-next-one)who were despondent that they had missed last Friday's GME "surge" from $43 to $65: not only are much higher prices coming (clearly with the stock trading at $300 now that was correct), but we also published a list of the most shorted Russell 3000 (small cap) stocks which due to their illiquidity would be most susceptible to squeezes. Those names, [which we summarized in this post](https://www.zerohedge.com/markets/so-you-missed-todays-epic-move-gamestop-heres-how-catch-next-one), as we now know **are the companies which one week later have absolutely exploded as rolling short squeezes have crushed the hedge fund industry, forcing it to cover, and have quickly become the best trading strategy.**

Don't believe us? Last Friday we put together an index tracking the base of the Top 10 shorts. **The basket is up more than 3x in one week!**



To be honest, it didn't take rocket surgery to figure this out: we merely consolidated our observations over the year past decade regarding most shorted stocks, and combined them with the realization that there is now a credible force - in the face of r/wallstreetbets - that has the capacity to ramp up said names. We then merely extended the logic that applied to GME to other heavily shorted and mostly illiquid names.

Just as we expected, the results were fascinating (and lucrative). What we ***did not***expect was for banks to piggyback on this effort and to publish their own screens of most shorted stocks - after all, doing so could directly harm their biggest clients, the same hedge funds that were short these stocks. After all, the last thing banks can afford is to lose their top customers just to demonstrate that they are smart.

And yet, one week later, one bank decided to break with the herd. In a note published overnight, Jefferies analyst Steven DeSanctis published a note titled "Hedge Fund Holdings: Attack on Shorts; Identifying Names That Could be Targeted" (which we assume was cleared by compliance), and which is set to burn countless bridges between Jefferies and its hedge fund clients that are long the names that Jefferies has **identified as the next wave of short squeeze candidates.**

This is what DeSanctis said:

*"In football, targeting gets you ejected, while in today's market, some cheer you on. The most heavily shorted stocks seeing widest gap in performance EVER in small caps, but we did see a big gap back in Apr. We have portfolios focused on shorts by Hedge Funds, also looking at the 5-heaviest shorts per sector. Besides short interest, we looked at sector wgt changes over time. Industrials continued to become more popular, while Tech relative wgt turned up."*

And the punchline:

*... the Robinhood and retail investors have been taking their aim at smaller-cap names that tend to lack liquidity.****We looked at the net Long and Short portfolios that do not have much liquidity and could see more big moves in  these names.***

Ok, but we last week we already listed the most likely small-cap, illiquid stocks with outsized short interest (which as we already know exploded higher). How exactly is Jefferies adding any value here?

Well, two things.

First, the bank realizes that the most-heavily shorted companies are already in play, so instead it looks at the next tier - those companies with a SI of float in the 10-30% range, yet which are sufficiently small cap and illiquid to generate outsized returns one the WSB army rushes them. In short, the bar is getting lowered in terms of which companies are likely to be short squeezed.

Second, and in going back to our original observation from 2013, Jefferies decided that the most suitable trade here is not to go naked long the most shorted names, but to pair it with a short in the uber-crowded longs which are most likely to drop. We completely agree with this approach, especially since we have observed precisely such a bifurcation between the "***most shorted***" and "***most popular/VIP***" baskets in recent days.



Here are some further observations from DeSanctis:

**Short portfolios are getting run over, while Uber Crowded, Popular in red**: Looking across the six portfolios we track, we have seen the most-shorted names rise 13.4% this month and they're up 157% from the low. In contrast, the Most Popular Longs by Hedge Funds are off by 4.9%, and the UBER Crowded names have slipped 5.6%. For those names that are owned by Long Only folks but Short by Hedge Funds, these stocks are up 9.6% and 110% from 3/18. This all comes on the back of the S&P 500 being basically flat.

**Looking for shorts to trade, we offer a few selections on our menu:**The data provided by our friends at MSCI allow us to build portfolios based on Net Short positions, those names that have gone from Long to Short. We also add a sprinkle of liquidity, or lack there of, along with biggest shorts by sector. The Margin Table gives you Net Short that are tougher to trade and could see more volatility, especially over the next several days/ weeks.

Ok, enough talk, let's trade. What are the these most shorted names that Jefferies thinks will go up, and alterantively, which are the crowded longs that are set to tumble?

For all those readers who patiently read all of the crap above, here are just the shorts squeeze candidates laid out by Jefferies...

**Silver Shorts**

 It was the one print everyone was waiting for, and here it is: silver futures opened up 7%, surging from $27/oz to a high of $29.095 following a weekend of speculation that the next big squeeze on WSB's radar is silver. And whether that's true or not, may no longer matter in a world where - as described below - there is virtually no physical silver to be purchased.

Silver miners are also getting the love:  Australian silver stocks including Argent Minerals and Boab Metals rise more than 20%.

So as silver approaches $30, keep an eye on major price slams, emerging either out of central banks who desperately need to keep precious metals lower, or the **BIS itself,**whose [Benoit Gilson will](https://www.zerohedge.com/news/2012-12-28/fleecebook-meet-benoit-gilson-head-foreign-exchange-gold-bis)have a busy day tomorrow.

**Update (1100ET)**: For some background on just how unprecedented this weekend's action in silver markets is, [Tyler Wall, the CEO of SD Bullion](https://sdbullion.com/) writes the following (emphasis ours):

In the 24 hours proceeding Friday market close, SD Bullion**sold nearly 10x the number of silver ounces that we normally would sell in an entire weekend** leading to Sunday market open.

In a normal market, we **normally can find at least one supplier/source willing to sell some ounces** over the weekend if we exceed our long position (the number of ounces we predict we will sell over the weekend).

However, **everyone we talk to is afraid of a gap up at Sunday night market open.**

This is about ready to get really interesting as there was very **little inventory left from suppliers/mints going into Friday close.**

Our direct AP supplier informed us after close on Friday that**the "US Mint will be on allocation for the remainder of Type 1"** (Current Silver Eagle Design).

Our sales for the month of January exceeded any one month last year during the heart of the pandemic. **It was an all-time record month in our company history.**

And, perhaps most importantly, as QTR tweets so succinctly, ***"this is a red pill moment for many, and it's beautiful."***

Additionally, there are also signs of a notable regime shift, [as Bloomberg points out](https://www.bloomberg.com/news/articles/2021-01-31/silver-retail-sites-grind-to-halt-as-reddit-horde-moves-to-coins?sref=ZMFHsM5Z), investors are holding onto silver they own, rather than trying to take profits.

***“Now we’re seeing nothing, no single offer, which is scary,”*** Peter Thomas, senior vice president at Zaner Group, said by phone from Chicago.

**“Whatever we sell, people are holding it. There’s no inflow of metal at all.”**

**Update (1030ET)**: It would appear the run on silver has begun. With the market closed, traders have rushed to secure some exposure to silver ahead of what WSB suggests could be "the world's biggest short squeeze" and that has left bullion dealers

As we noted below, **the premium for physical silver had soared late Friday and into Saturday** (after the massive flows into SLV), but as Sunday rolled around, **bullion dealers are now facing massive shortages of physical coins.**



[*Source: APMEX*](https://www.apmex.com/)



[Source: JMBullion](https://www.jmbullion.com/)



[Source: SDBullion](https://sdbullion.com/)

And as one investor noted, the shortages are widespread...



We can only imagine where SLV will open after this.

\*  \*  \*

While all eyes have been focused on GameStop and a handful of other heavily-shorted stocks as they exploded higher under continuous fire from WallStreetBets traders igniting a short-squeeze coinciding with a gamma-squeeze, the last few days saw another asset suddenly get in the crosshairs of the 'Reddit-Raiders' - Silver.

On Thursday, we asked [**"Is The Reddit Rebellion About To Descend On The Precious Metals Market?"**](https://www.zerohedge.com/markets/reddit-rebellion-about-descend-precious-metals-market)**...**[One WallStreetBets user (jjalj30) posted the following last night:](https://www.reddit.com/r/wallstreetbets/comments/l68ill/the_biggest_short_squeeze_in_the_world_slv_silver/)

**Silver Bullion Market is one of the most manipulated on earth.**Any short squeeze in silver paper shorts would be EPIC. We know billion banks are manipulating gold and silver to cover real inflation.

**Both the industrial case and monetary case, debt printing has never been more favorable for the No. 1 inflation hedge Silver.**

Inflation adjusted Silver should be at 1000$ instead of 25$. Link to post removed by mods.

**Why not squeeze $SLV to real physical price.**

Think about the Gainz. If you don't care about the gains, think about the banks like JP MORGAN you'd be destroying along the way.

...

This surge came after [Reddit user 'TheHappyHawaiian' posted the following thesis](https://www.reddit.com/r/wallstreetbets/comments/l6novm/the_real_dd_on_slv_the_worlds_biggest_short/) on buying silver noting that***"the worlds biggest short squeeze is possible and we can make history."***

'TheHappyHawaiian' cites two reasons to buy - The Short Squeeze and Fundamentals.

## ****The short squeeze:****

Buy SLV shares (or PSLV shares) and SLV call options to force physical delivery of silver to the SLV vaults.

The silver futures market has oscillated between having roughly 100-1 and 500-1 ratio of paper traded silver to physical silver, but lets call it 250-1 for now. This means that for every 250 ounces in open interest in the futures market, only 1 actually gets delivered. Most traders would rather settle with cash rather than take delivery of thousands of ounces of silver and have to figure out to store and transport it in the future.

The people naked shorting silver via the futures markets are a couple of large banks and making them pay dearly for their over leveraged naked shorts would be incredible. It's not Melvin capital on the other side of this trade, its JP Morgan. **Time to get some payback for the bailouts and manipulation they've done for decades (look up silver manipulation fines that JPM has paid over the years).**

The way the squeeze could occur is by forcing a much higher percentage of the futures contracts to actually deliver physical silver. There is very little silver in the COMEX vaults or available to actually be use to deliver, and if they have to start buying en masse on the open market they will drive the price massively higher. There is no way to magically create more physical silver in the world that is ready to be delivered. With a stock you can eventually just issue more shares if the price rises too much, but this simply isn't the case here. The futures market is kind of the wild west of the financial world. Real commodities are being traded, and if you are short, you literally have to deliver thousands of ounces of silver per contract if the holder on the other side demands it. If you remember oil going negative back in May, that was possible because futures are allowed to trade to their true value. They aren't halted and that's what will make this so fun when the true squeeze happens.

Edit for more detail: let’s say there’s one futures seller who gets unlucky and gets the buyer who actually wants to take delivery. He doesn’t have the silver and realizes it’s all of a sudden damn difficult to find some physical silver. He throws up his hands and just goes long a matching number of futures contracts and will demand actual delivery on those. Problem solved because he has now matched the demanding buyer with a new seller. The issue is that the new seller has the same issue and does the exact same thing. This is how the cascade effect of a meltup occurs. All the naked shorts trying to offload their position to someone who actually has some silver. My goal is to ensure that I have the silver and won’t sell to them until silver is at a far higher price due to the desperation.

The silver market is much larger than GME in terms of notional value, but there is very little physical silver actually readily available (think about the difference between total shares and the shares in the active float for a stock), and the paper silver trading hands in the futures market is hundreds of times larger than what is available. Thus when they are forced to actually deliver physical silver it will create a massive short squeeze where an absurd amount of silver will be sought after (to fulfill their contractually obligated delivery) with very little available to actually buy. They are naked shorting silver and will have to cover all at once and the float as a percentage of the total silver stock globally is truly miniscule.

## ****The fundamentals:****

The current gold to silver ratio is 73-1. Meaning the price of gold per ounce is 73 times the price of silver. Naturally occurring silver is only 18.75 times as common as gold, so this ratio of 73-1 is quite high. Until the early 20th century, silver prices were pegged at a 15-1 ratio to gold in the US because this ratio was relatively known even then. In terms of current production, the ratio is even lower at 8-1. Meaning the world is only producing 8 ounces of silver for each newly produced ounce of gold.

Global industry has been able to get away with producing so little new silver for so long because governments have dumped silver on the market for 80 years, but now their silver vaults are empty. At the end of WW2 government vaults globally contained 10 billion ounces of silver, but as we moved to fiat currency and away from precious metal backed currencies, the amount held by governments has decreased to only 0.24 billion ounces as they dumped their supply into the market. But this dumping is done now as their remaining supply is basically nil.

This 0.24 billion ounces represents only 8% of the total supply of only 3 billion ounces stored as investment globally. This means that 92% of that gold is held privately by institutions and by millions of boomer gold and silver bugs who have been sitting on meager gains for decades. These boomers aren't going to sell no matter what because they see their silver cache as part of their doomsday prepper supplies. It's locked away in bunkers they built 500 miles from their house. Also, with silver at $23 an ounce currently, this means all of the worlds investment grade silver only has a total market cap of $70 billion. For comparison the investment grade gold in the world is worth roughly $6 trillion. This is because most of the silver produced each year actually gets used, as I have mentioned. $70 billion sounds like a lot, but we don’t have to buy all that much for the price to go up a lot.

\*\*If the squeeze happens, it would be like 40 years worth of their gains in 4 months \*\*

The reason that only 8 ounces of silver are produced for every 1 ounce of gold in today's world is because there aren't really any good naturally occurring silver deposits left in the world. Silver is more common than gold in the earth's crust, but it is spread very thin. Thus nearly every ounce of silver produces is actually a byproduct of mining for other metals such as gold or copper. This means that even as the silver price skyrockets, it wont be easy to increase the supply of silver being produced. Even if new mines were to be constructed, it could take years to come online.

Finally, most of this newly created silver supply each year is used for productive purposes rather than kept for investment. It is used in electronics, solar panels, and jewelry for the most part. This demand wont go away if the silver price rises, so the short sellers will be trying to get their hands on a very small slice of newly minted silver. The solar market is also growing quickly and political pressure to increase solar and electric vehicles could provide more industrial demand.

The other part of the story is the faster moving piece and that is the inflation and currency debasement fear portion. The government and the fed are printing money like crazy debasing the value of the dollar, so investors look for real assets like precious metals to hide out in, driving demand for silver. The $1.9 trillion stimulus passing in a month or two could be a good catalyst. All this money combined with the reopening of the economy could cause some solid inflation to occur, and once inflation starts it often feeds on itself.

## ****What to buy:****

I will be putting **50% directly into SLV shares, and 50% into the $35 strike SLV calls expiring 4/16**.



This way the SLV purchase creates a groundswell into silver immediately that then **rockets through a gamma squeeze as SLV approaches $35.**

**Price target of $75 for SLV by end of April if the short squeeze happens.**

Edit: for the part of your purchases going into shares, some people recommend PSLV because they think SLV might start lying about having the silver in their vault. Or that the custodian will be double counting, ie claiming that the same silver belongs to multiple people (banking on the fact that people wont all try to get their silver at once). So if you buy SLV shares and calls, that's great. But I think it could be prudent for us to buy options in SLV (no options on PSLV) and shares in PSLV. It all depends on how paranoid you want to be. There is a lot of paranoia in the precious metals world.

Alternate options:

* **buying physical silver;** this also works but you pay a premium to buy and sell so its less efficient and you take fewer silver ounces off of the market because of the premium you pay
* **going long futures for February or March;** if you are a rich bastard and can actually take physical delivery of 1000s of ounces of silver by all means do so. But if you simply settle for cash you are actually part of the problem. We need actual physical delivery, which is what SLV demands and is why SLV is the way to go unless you are going to take delivery
* **miners**; I don’t recommend buying miners as part of this trade. Miners will absolutely go up if SLV goes up, but buying them doesn't create the squeeze in the actual silver market. Furthermore, most silver miners only derive 30-50% of their revenue from silver anyways, so eventually SLV will outperform them as it gets high enough (and each marginal SLV dollar only increases miner profits by a smaller and smaller percentage)

## ****Details on SLV physical settlement:****

When SLV issues shares, the custodian is forced to true up their vaults with the proportional amount of silver daily. From the SLV prospectus:

"An investment in Shares is: Backed by silver held by the Custodian on behalf of the Trust. The Shares are backed by the assets of the Trust. The Trustee’s arrangements with the Custodian contemplate that at the end of each business day there can be in the Trust account maintained by the Custodian no more than 1,100 ounces of silver in an unallocated form. The bulk of the Trust’s silver holdings is represented by physical silver, identified on the Custodian’s or, if applicable, sub-custodian's, books in allocated and unallocated accounts on behalf of the Trust and is held by the Custodian in London, New York and other locations that may be authorized in the future."

'TheHappyHawaiian" ends with a call to (financial) arms:

**Join me brothers. Lets take silver to the moon and take on the biggest and baddest manipulators in the world.**

Please post rocket emojis in the comments as desired.

Disclaimer: do your own research, make your own decisions, everything here is a guess and hypothetical and nothing is guaranteed, not a financial advisor, I have ADHD and maybe other things too.

**Bear case: silver does tend to sell off if the broader market plunges so it’s not immune to broad market sell off. It’s also the most manipulated market in the world so we are facing some tough competition on the short side**

Interestingly, 'TheHappyHawaiian' dropped this update on 1/29:

Due to the manipulation and collusion of citadel, hedge funds, and brokers to change the rules and rig the game in their favor. Who likely knew ahead of time and bought puts right before and calls at the bottom, GME is too important to abandon still. **SLV is still my next play but GME needs to go to $1000 and these people need to go to jail.**

However, judging by the **massive physical premiums for silver** we are seeing this weekend at [APMEX](https://www.apmex.com/product/218577/2021-1-oz-american-silver-eagle-bu)...

**Fusion Rockets**

**Dr Fatima Ebrahimi has invented a new fusion rocket thruster concept which could power humans to Mars and beyond.**

The physicist who works for the US Department of Energy's Princeton Plasma Physics Laboratory (PPPL) designed the rocket which will use magnetic fields to shoot plasma particles - electrically charged gas - into the vacuum of space.

According to Newton's second and third laws of motion, the conservation of momentum would mean the rocket was propelled forwards - and at speeds 10 times faster than comparable devices.



Image:The invention could enable humans to travel to Mars

While current space-proven plasma propulsion engines use electric fields to propel the particles, the new rocket design would accelerate them using magnetic reconnection.

This process is found throughout the universe but is most observable to humanity on the surface of the sun. When magnetic field lines converge there, before separating and then reconnect again, they product an enormous amount of energy.

Similar energy is produced inside torus-shaped machines known as tokamaks, a magnetic confinement device which is also a leading candidate for a practical nuclear fusion reactor.

"I've been cooking this concept for a while," said PPPL's principal research physicist Dr Fatima Ebrahimi, whose paper detailing the invention has been published in the Journal of Plasma Physics.

"I had the idea in 2017 while sitting on a deck and thinking about the similarities between a car's exhaust and the high-velocity exhaust particles created by PPPL's National Spherical Torus Experiment (NSTX)," she said.

The NSTX is the forerunner of the laboratory's present flagship fusion facility, which is being investigated with funding by the US Department of Energy.

"During its operation, this tokamak produces magnetic bubbles called plasmoids that move at around 20 kilometres per second, which seemed to me a lot like thrust," Dr Ebrahimi added.

Nuclear fusion is the power that drives the sun and stars. It combines light elements in the form of plasma - the hot, charged state of matter composed of free electrons and atomic nuclei that represents 99% of the visible universe - to generate massive amounts of energy.

If a reactor functioning on the same principles could be recreated on Earth, it would provide a "virtually inexhaustible supply of power to generate electricity" according to the PPPl.



Image:The technology uses the same process we see in solar flares

Dr Ebrahimi's new concept performs much better than existing plasma thrusters in computer simulations - generating exhaust with velocities of hundreds of kilometres per second, 10 times faster than those of other thrusters.

That faster velocity at the beginning of a spacecraft's journey could bring the outer planets within reach of astronauts, the physicist said.

"Long-distance travel takes months or years because the specific impulse of chemical rocket engines is very low, so the craft takes a while to get up to speed," she said.

"But if we make thrusters based on magnetic reconnection, then we could conceivably complete long-distance missions in a shorter period of time."

She stressed that her thruster concept stems directly from her research into fusion energy. "This work was inspired by past fusion work and this is the first time that plasmoids and reconnection have been proposed for space propulsion," Dr Ebrahimi said. "The next step is building a prototype!"

**Intuition: A True Superpower**

Mainstream science has been catching on to the fact that non-physical aspects of the human being are not only real, but they can be grown and developed into powerful tools for personal development and use. Non physical phenomena, like intuition, [remote viewing](https://www.collective-evolution.com/2020/12/17/declassified-cia-document-shows-remote-viewing-attempt-of-a-galactic-federation-headquarters/), [telepathy](https://www.collective-evolution.com/?s=telepathy), and precognition (to name a few) for example, have been studied at the highest levels of government for decades. Various nations have poured millions if not billions of dollars into these programs for with demonstrated repeated success, but despite this fact these findings remain heavily unacknowledged, ridiculed, “classified” and in many cases chucked in the “pseudoscience” bucket.

It’s understandable, new information and discoveries have always been heavily opposed and “scoffed” at by intellectual authorities, especially if these discoveries don’t fit within the accepted framework of knowledge. There’s a general tendency to dismiss ideas that go against the grain and conflict what we’ve previously convinced ourselves is truth.

**-->Free e-Guide - *Your Body Electric: An Introduction to Bioenergetics:* *Dr. Christine Schaffner will help you learn the basic principles of energy, frequency and vibrational healing!***[***Click here to learn more!***](https://www.collective-evolution.com/t/body-electric)

So, what exactly is intuition? A good way to describe it is a gut feeling, a sense, or a feeling about something. It’s arriving to some sort of truth about something, an event or experience without using any type of analytic reasoning. Intuition has been measured, which is why the [US Office of Naval Research (ONR) admitted](https://time.com/4721715/phenomena-annie-jacobsen/) to developing methods to develop and measure this phenomenon for their soldiers.

***We have to understand what gives rise to this so-called ‘sixth sense,’ says Peter Squire, a program officer in ONR’s Expeditionary Maneuver Warfare and Combating Terrorism department. Today’s Navy scientists place less emphasis on trying to understand the phenomena theoretically and more on using technology to examine the mysterious process, which Navy scientists assure the public is not based on superstition. “If the researchers understand the process, there may be ways to accelerate it — and possibly spread the powers of intuition throughout military units,” says Dr. Squire. The Pentagon’s focus is to maximize the power of the sixth sense for operational use.***

As mentioned before, many interesting abilities that go beyond the conscious mind and utilize what some would call metaphysical aspects have long been used by governments and intelligence agencies. Perhaps one day the human race will use these abilities for progress and to better the human experience. It’s like technology, do we use it for the good of humanity or do we use it to build more powerful and destructive bombs and weaponry? This is why we here at Collective Evolution always emphasize that humanity needs a shift in consciousness. Our discoveries and developments don’t really matter, it’s more so the consciousness behind those discoveries that do. This is why we believe that the greatest and most potent form of change comes from within.

Dr. Judith Orloff, MD, Assistant Clinical Professor of Psychiatry at UCLA [told Forbes](https://www.forbes.com/sites/alexandramysoor/2017/02/02/the-science-behind-intuition-and-how-you-can-use-it-to-get-ahead-at-work/?sh=20862337239f) that, “In my private practice, I work with women executives who come to me to develop their intuition. They see it as a ‘superpower’ to use in all decisions at work as well as a guide for how to be good leaders and organizers” According to Dr. Orloff, scientists believe intuition operates through the entire right side of our brain, the brain’s hippocampus and through our gut (digestive system has neurons as well).

**From the Web**

Alexandra Mysoor, the writer of the Forbes article goes on to explain:

*When the neurotransmitters (chemical messengers) in your gut fire up, you may be feeling either “butterflies” or queasy sensations. Pay attention to those. It’s no accident we use the term intuition and gut feeling interchangeably because science has now shown us that our gut has a brain of its own,*[*a second brain so to speak*](http://www.hopkinsmedicine.org/health/healthy_aging/healthy_body/the-brain-gut-connection)*. In fact, our gut has an entire network of neurotransmitters called the enteric nervous system.*

The body is truly an amazing puzzle, and we probably haven’t moved beyond the tip of the iceberg when it comes to discovering what we are actually capable of.  For example, a study (meta analysis) in the journal *Frontiers in Human Neuroscience*titled “[Predicting the unpredictable: critical analysis and practical implications of predictive anticipatory activity](http://journal.frontiersin.org/Journal/10.3389/fnhum.2014.00146/abstract)” examined a number of experiments regarding precognition.

These experiments indicate that the human body can actually detect randomly delivered stimuli that occur 1-10 seconds in advance. In other words, the human body seems to know of an event and reacts to an event that has yet to occur. What occurs in the human body before these events are physiological changes that are measured in the cardiopulmonary, the skin, and the nervous system.

Pretty cool, isn’t it? [Another article written for Forbes](https://www.forbes.com/sites/brucekasanoff/2017/02/21/intuition-is-the-highest-form-of-intelligence/?sh=2696b3043860) written by Bruce Kasanoff by explains,

*Intuition, argues Gerd Gigerenzer, a director at the Max Planck Institute for Human Development, is less about suddenly “knowing” the right answer and more about*[*instinctively understanding*](https://www.mpib-berlin.mpg.de/en/research/adaptive-behavior-and-cognition/publications/books/gut-feelings)*what information is unimportant and can thus be discarded.*

*Gigerenzer, author of the book Gut Feelings: The Intelligence of the Unconscious, says that he is both intuitive and rational. “In my scientific work, I have hunches. I can’t explain always why I think a certain path is the right way, but I need to trust it and go ahead. I also have the ability to check these hunches and find out what they are about. That’s the science part. Now, in private life, I rely on instinct. For instance, when I first met my wife, I didn’t do computations. Nor did she.”*

A[paper published](https://www.researchgate.net/publication/5656339_Testing_Nonlocal_Observation_as_a_Source_of_Intuitive_Knowledge) in 2008 by Dean Radin, Chief Scientist at the Institute of Noetic Sciences (IONS) explains,

*Intuition is widely regarded as a key source of inspiration in medical diagnosis, technological innovation, business decisions, artistic achievement, and scientific discovery. Based upon an analysis of the lives of numerous scientific icons, Root-Bernstein concluded that “Virtually without exception, the greatest mathematicians and scientists assert that the development of this pictorial, visual, kinesthetic, or generally sensual algorithm (associated with intuition) is the basis for scientific thinking. But what is intuition? Given its central role in advancing science and civilization, one might expect that this topic has been a keen subject of inquiry, especially within academic psychology, for many decades.*

*Surprisingly, until recently it has been studiously ignored. This may be because the quasi-magical, non-rational nature of intuition presents an embarrassing challenge to science, which prides itself on the power of rational knowing. Intuitive knowledge does not appear to function like the methodical interferences associated with rational thought. It arises “in a flash,” or “out of the blue,” sometimes with correct answers to thorny scientific and technical problems, elegant solutions to complex mathematical theorems, and complete scores for intricate musical compositions.*

Top of Form

**STAY AWARE**

*Twenty-six adults experienced in using HeartMath techniques and who could sustain a heart-coherent state completed two rounds of study protocols approximately two weeks apart. Half of the participants completed the protocols after they intentionally achieved a heart-coherent state for 10 minutes. The other half completed the same procedures without first achieving heart coherence. Then they reversed the process for the second round of monitoring, with the first group not becoming heart-coherent before completing the protocols and the second group becoming heart-coherent before. The point was to test whether heart coherence affected the results of the experiment.*

*Participants were told the study’s purpose was to test stress reactions and were unaware of its actual purpose. (This practice meets institutional-review-board standards.) Each participant sat at a computer and was instructed to click a mouse when ready to begin.*

*The screen stayed blank for six seconds. The participant’s physiological data was recorded by a special software program, and then, one by one, a series of 45 pictures was displayed on the screen. Each picture, displayed for 3 seconds, evoked either a strong emotional reaction or a calm state. After each picture, the screen went blank for 10 seconds. Participants repeated this process for all 45 pictures, 30 of which were known to evoke a calm response and 15 a strong emotional response.*

The results of the experiment were fascinating to say the least. The participants’ brains and hearts responded to information about the emotional quality of the pictures **before**the computer flashed them (random selection). This means that the heart and brain were both responding to **future**events. The results indicated that the responses happened, on average, 4.8 seconds **before** the computer selected the pictures.

How mind-altering is that?

*Even more profound, perhaps, was data showing the heart received information before the brain. “It is first registered from the heart,” Rollin McCraty Ph.D. explained, “then up to the brain (emotional and pre-frontal cortex), where we can logically relate what we are intuiting, then finally down to the gut (or where something stirs).”*

This study showed that the heart, alongside the brain, has some sort of intuitive intelligence.

**The Takeaway:**We are living in a day and age where new information and evidence are constantly emerging, challenging what we once thought was real or what we think we know about ourselves as human beings.  It’s best to keep an open mind. Perhaps there are aspects of ourselves and our consciousness that have yet to be discovered. Perhaps if we learn from this information it can help us better ourselves and others.

We live our lives constantly thinking and analyzing, we grow up in school memorizing and we are not really taught anything about our feelings, emotions and intuition. Imagine the difference it would make in our individual and collective lives if we grew up learning how to trust our intuition, how to follow it and what it is? It begs the question, how many of us truly follow our heart? We seem to be thrust into a system that encourages us to find the best job and really think about our future. There’s nothing wrong with that but we have to ask ourselves, what impact does it have on us mentally if we do not follow our heart, our intuition? Are we seeing a big rise in drug use, depression and other mental issues because society forces us to in a direction we really don’t desire to go? Are we unhappy because we are not engaging in things that our heart desires to engage in? Are we not doing enough of what we love? Something to think about. Never ignore the voice of your gut, your heart, your intuition. It’s always telling us something and it’s time we ‘listen.’ This applies to all experiences, from deciphering information and truth to determining what path it is you want to take in life.

[**Dive Deeper**](https://cetv.one/)

These days, it’s not just knowing information and facts that will create change, it’s changing ourselves, how we go about communicating, and re-assessing the underlying stories, ideas and beliefs that form our world. We have to practice these things if we truly want to change. At Collective Evolution and CETV, this is a big part of our mission.

Amongst 100's of hours of exclusive content, we have recently completed two short courses to help you become an effective changemaker, one called Profound Realization and the other called How To Do An Effective Media Detox.

**Top of Form**

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**Elevate your inbox and get conscious articles sent directly to your inbox!**

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**News**

**Super-Plankian Light**

Could there be a new kind of light in the universe? Since the late 19th century, scientists have understood that, when heated, all materials emit light in a predictable spectrum of wavelengths. Research published today in *Nature* *Scientific Reports* presents a material that emits light when heated that appears to exceed the limits set by that natural law.

In 1900, Max Planck first mathematically described a pattern of radiation and ushered in the quantum era with the assumption that energy can only exist in discrete values. Just as a fireplace poker glows red hot, increasing heat causes all materials to emit more intense radiation, with the peak of the emitted spectrum shifting to shorter wavelengths as heat rises. In keeping with Planck’s Law, nothing can emit more radiation than a hypothetical object that absorbs energy perfectly, a so-called “blackbody.”

The new material discovered by Shawn Yu Lin, lead author and a professor of physics at Rensselaer Polytechnic Institute, defies the limits of Planck’s law, emitting a coherent light similar to that produced by lasers or LEDs, but without the costly structure needed to produce the stimulated emission of those technologies. In addition to the spectroscopy study just published in *Nature* *Scientific Reports*, Lin previously published an imaging study in *IEEE Photonics Journal*. Both show a spike in radiation at about 1.7 microns, which is the near-infrared portion of the electromagnetic spectrum.

****

Advanced “Super-Planckian” Material Exhibits LED-Like Light When Heated. Credit: Rensselaer Polytechnic Institute

“These two papers offer the most convincing evidence of ‘super-Planckian’ radiation in the far-field,” said Lin. “This doesn’t violate Planck’s law. It’s a new way to generate thermal emission, a new underlying principle. This material, and the method that it represents, opens a new path to realize super-intense, tunable LED-like infrared emitters for thermophotovoltaics and efficient energy applications.”

For his research, Lin built a three-dimensional tungsten photonic crystal — a material that can control the properties of a photon — with six offset layers, in a configuration similar to a diamond crystal, and topped with an optical cavity that further refines the light. The photonic crystal shrinks the spectrum of light that is emitted from the material to a span of about 1 micrometer. The cavity continues to squeeze the energy into a span of roughly 0.07 micrometers.

Lin has been working to establish this advance for 17 years, since he created the first all-metallic photonic crystal in 2002, and the two papers represent the most rigorous tests he has conducted.

“Experimentally, this is very solid, and as an experimentalist, I stand by my data. From a theoretical perspective, no one yet has a theory to fully explain my discovery,” Lin said.

In both the imaging and spectroscopy study, Lin prepared his sample and a blackbody control — a coating of vertically aligned nanotubes on top of the material — side by side on a single piece of silicon substrate, eliminating the possibility of changes between testing the sample and control that could compromise the results. In an experimental vacuum chamber, the sample and control were heated to 600 degrees Kelvin, about 620 degrees Fahrenheit.

In *Nature* *Scientific Reports*, Lin presents spectral analysis taken in five positions as the aperture of an infrared spectrometer moves from a view filled with the blackbody to one of the material. Peak emission, with an intensity of 8 times greater than the blackbody reference, occurs at 1.7 micrometers.

The *IEEE Photonics Journal* paper presented images taken with a near-infrared conventional charge-coupled device, a camera that can capture the expected radiation emission of the material.

Recent unrelated research has shown a similar effect at a distance of less than 2 thermal wavelengths from the sample, but Lin’s is the first material to display super-Planckian radiation when measured from 30 centimeters distance (about 200,000 wavelengths), a result showing the light has completely escaped from the surface of the material.

Although theory does not fully explain the effect, Lin hypothesizes that the offsets between the layers of photonic crystal allow light to emerge from within the many spaces inside the crystal. The emitted light bounces back and forth within the confines of the crystal structure, which alters the property of the light as it travels to the surface to meet the optical cavity.

“We believe the light is coming from within the crystal, but there are so many planes within the structure, so many surfaces acting as oscillators, so much excitation, that it behaves almost like an artificial laser material,” Lin said. “It’s just not a conventional surface.”

The new material could be used in applications like energy harvesting, military infrared-based object tracking and identification, producing high efficiency optical sources in the infrared driven by waste heat or local heaters, research requiring environmental and atmospheric and chemical spectroscopy in the infrared, and in optical physics as a laser-like thermal emitter.

“This exciting and unexpected discovery emphasizes the importance of conducting paradigm-shifting fundamental research that can move the boundaries of knowledge in physics and material science” said Curt Breneman, Dean of the Rensselaer School of Science. “We are very proud of Professor Lin and his team for leading the way towards the development of new and transformative technologies.”

Reference: “An *In-situ* and Direct Confirmation of Super-Planckian Thermal Radiation Emitted From a Metallic Photonic-Crystal at Optical Wavelengths” by Shawn-Yu Lin, Mei-Li Hsieh, Sajeev John, B. Frey, James A. Bur, Ting-Shan Luk, Xuanjie Wang and Shankar Narayanan, 23 March 2020, *Scientific Reports*.
[**DOI: 10.1038/s41598-020-62063-2**](https://doi.org/10.1038/s41598-020-62063-2)

“An In-situ and Direct Confirmation of Super-Planckian Thermal Radiation Emitted From a Metallic Photonic-Crystal at Optical Wavelength” was supported by NSF under award ECCS-1840673-NOA (device characterization and modeling) and DOE Office of Science under award DE-FG02-06ER46347 (device fabrication). At Rensselaer, Lin was joined by Mei-Li Hsieh, B. Frey, James A. Bur, Xuanjie Wang, and Shankar Narayanan, as well as Sajeev John of the University of Toronto, and Ting-Shan Luk of Sandia National Laboratory.

**Malibu Base**

A little more than 6 miles off the coast of Point Dume in Malibu, California, an unusual-looking structure sits on the sea bed floor. Based on images obtained on [Google Earth](http://www.google.com/earth/), the oval-shaped object has a huge flat top and what appear to be pillars or columns that seem to reveal the entrance to a darker, inner place.

The anomaly — for the moment, we’ll call it that — is approximately 2,000 feet below the surface of the water, measuring nearly 3 miles wide. What exactly is this thing?

According to the website of a California-based radio program, “[Fade to Black](http://www.jimmychurchradio.com/),” this may be “the Holy Grail of UFO/USO [unidentified submerged objects]” that researchers have been looking for over the last 40 years.

**Watch this video created by “Fade to Black” radio host Jimmy Church about the Malibu underwater anomaly.**

Jimmy Church, who hosts “Fade to Black” on the Dark Matter Radio Network, told The Huffington Post one of his listeners — someone named Maxwell — contacted him last month with a Google Earth image showing something odd, underwater off the coast of Malibu. Church then asked graphic designer Dale Romero to capture as many angled images of the anomaly as he could.

“I needed him to find a way to get it under and above the water,” Church said. “My first impression was that it was Greek, it looked artificial and didn’t look natural.

“When you’re looking at it from above, it’s a nearly perfect oval shape,” Church continued. “In the natural surroundings, nothing is symmetrical. Everything is eroded and covered in rocks and sloping and peaking, and right here, for 2 miles, it is a perfect oval with a black separation or outline to it.

“It just stands out that it has to be some type of roof. It’s not unlike a domed stadium or a covered indoor race track or an Olympic arena — it’s got that feel to it. It looks like a perfect oval manmade structure sitting on a construction site.”

Using the [Google Earth](http://www.google.com/earth/) coordinates — which are, by the way, **34° 1’23.31″N 118° 59’45.64″W** — Church and Romero came up with a series of images, starting from due south, looking north, all the way around and ending up at due north, looking back south.

**Check out this Google Earth slideshow of the alleged Malibu Anomaly.**

*PHOTO GALLERY*

Malibu, California, Underwater Anomaly

As unusual as this “anomaly” appears, is alien-UFO base the only realistic explanation for it?

“I didn’t see anything special about it. I think it’s because it looks like there’s a flat surface and then, below it, it looks like there are these vertical columns, so somebody can say, ‘Oh, this is the entryway to something special,’” said earthquake geologist David Schwartz of the [U.S. Geological Survey](http://earthquake.usgs.gov/).

“I think it’s natural and is a part of the continental shelf,” Schwartz told HuffPost. “It’s just a complicated part of what’s now offshore that has seen some erosion and, maybe, slumping when perhaps this was partially exposed when sea level was lower. This is a really major earthquake area and perhaps some of these features are a result of slope failures, due to shaking.

“There’s no flag under the water that says: ‘I’m the entrance to an alien base.’ There’s nothing unnatural-looking about it — it’s just showing some sort of variation in the offshore coastal morphology,” Schwartz said.

Schwartz shared with HuffPost [a research paper published in 2009](http://big.assets.huffingtonpost.com/offshore.pdf) by the Geological Society of America, showing cross-sections of the anomaly area — designated as Sycamore Knoll — by those who actually studied this underwater region.

The following image is from that paper. If you look to the left of the middle of the illustration, you can clearly see the oval-shaped “anomaly” some refer to as an underwater UFO base:



Bottom of Form

“This is interpreted as a thrust fault,” Schwartz said, “meaning one side of the crust moves up over the other — and what we’re looking at is interpreted as being the surface expression of this Dume thrust, which is part of a large fault system in Southern California.”

The bottom line, he added, “is that people have recognized this.”

Could that be the final truth of what this object is?

HuffPost reached out to [John Anthony West](http://www.jawest.net/), an independent Egyptologist, who won an Emmy award for his research for the 1993 NBC documentary, “Mystery of the Sphinx,” in which he and geologist Robert Schoch presented evidence that the Great Sphinx of Giza may be thousands of years older than previously thought.

West examined the images of the Malibu underwater object.

“The pictures are a bit misleading in that it looks as though it’s on the shore,” West told HuffPost. “My first reaction — knowing that it was 2,000 feet under the water — was that, under no circumstances could it, in fact, be artificial, manmade. And I have enough experience, looking at geology and distinguishing between what could perhaps be artificial, and then there’s sort of a gray area in-between. As far as I’m concerned, there’s no gray area.”

West says he’s inclined to go along with the geological explanation.

“It doesn’t look at all manmade. It has what look like pillars there, but they’re unevenly spaced and then, to the right, you see other seemingly pillars still attached, actually, to the bedrock, in the process of forming.”

And yet, West acknowledges Unidentified Flying Objects.

“I’m convinced that UFOs are a reality — there’s too much evidence out there. Beyond that, we don’t know anything. We don’t know who they are, why they’re here, [or] how much of this stuff is our own government. A point beyond that is that anything that isn’t explained or that can’t be explained by current scientific methods, automatically it’s aliens. It’s the explanation of last resort, and I just don’t buy that.”

Also weighing in on the Malibu mystery is [former FBI Special Agent Ben Hansen](http://www.benhansen.com/), who has an extensive background investigating and analyzing questionable pictures and videos.

Hansen supplied HuffPost with the following Google Earth image of the underwater object in question:



“This was taken from a different angle of the ‘mysterious base,’” Hansen told HuffPost in an email. “The dark areas that people are saying look like the inside of the base really starts to look just like shading of indentations to the shelf, and the ‘pillars’ are now represented as jagged ridges.”

Hansen cautions about how we interpret things we see on Google Earth.

“Google obtains their underwater data from several different sources, including satellite radar and echo sonar from the Navy, NOAA, NASA and other agencies. Because they often use very different technologies, the derived information isn’t always going to agree. When it doesn’t, Google relies on its automatic 3D auto-generation programs to make sense of it.

“We’re dealing with limited information to render the graphic because we can see it evidenced in the disparity of image quality between the anomaly and the areas immediately surrounding it,” Hansen added. “The blurry sections and jagged edges obviously suggest a patchwork of image processing has taken place.”

In the end, we’re left with a variety of theories to explain the Malibu anomaly, a.k.a. Sycamore Knoll. Will the UFO-alien-underwater-base proponents be eventually proven right, leaving geologists in the deep blue dust, scratching their heads and wondering how *they* got it wrong?

West concedes the possibility that this object could be an entrance of sorts, in the same way that the action of moving water can form caves below the surface.

“There’s no big mystery to this thing 2,000 feet under the sea in terms of it being an entrance,” West said. “Of course, until you get a camera there, you don’t know where the entrance is leading. I’d hazard a guess that it doesn’t go in too far, and if they do get in there, I think the chances are that they’re not going to find the lost treasures of Atlantis.”