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In the middle of the night, invisible to all but special telescopes in two Chinese observatories, the Micius satellite sends particles of light to Earth to establish the world's safest communications connection. Named after an ancient Chinese philosopher also known as Mozi, Micius is the world's first quantum communications satellite and has been at the forefront of quantum encryption for several years. Scientists have now reported using this technology to reach an important milestone: a long-range communication that can be trusted without even trusting the satellite through which it passes. Launched in 2016, Micius has already made a number of breakthroughs as part of its operating team led by Pan Jian Wei, China's Father of quantum. The satellite is the source of a pair of tangled photons, twinned light particles whose properties remain intertwined no matter how far apart they are. If you manipulate one of the photons, the other will also be affected at the same moment. It is this property that underlies the safest forms of quantum cryptography, the distribution of quantum keys based on entanglement. If you use one of the tangled particles to create a key for encoding messages, only a person with another particle can decipher them. Micius has previously produced tangled photons and delivered them to two ground stations (observatories) 1,200 km apart using special telescopes. Scientists have shown that photons reach Earth as confused as in orbit. Then, in 2017, Micius's team used tangled photons to encrypt gears, allowing them to attend a virtual meeting between the Austrian and Chinese scientific academies in Vienna and Beijing, respectively - 7,400 km apart. This included the development of a key distribution mechanism and a mechanism to prevent malicious attacks, such as the blinding of telescopes with other light signals. None of the messages went through Micius. It only produces and distributes encryption keys. But both ground stations had to talk and trust Micius as part of their communication systems and use it as a relay before establishing communication with each other. The quantum encryption relies on tangled particles of light. A new paper by jurk Peter/ShutterstockA from the Pan Jia-Wei laboratory, published in the journal Nature, shows that Micius has again successfully brought quantum cryptography based on entanglement to its original ground stations 1,200 km apart. But this time the satellite sent simultaneous streams of tangled photons to the ground stations to establish a direct link between the two. This gave them reliable, indestructible cryptographic protection without having to trust the satellite. Until now, this has never been done via satellite or at such long distances. Again, neither of the messages passed through Micius. Satellite provided tangled photons as a convenient resource for quantum quantum and two ground stations then used them in accordance with the agreed protocol. The new article does not specify how the messages were transmitted in this case, but theoretically it could be done by optical fiber, another communications satellite, radio or any other method by which they agree. The quantum race Safe long-distance links, such as this one, will be the basis of the quantum Internet, a future global network with additional security, working on the laws of quantum mechanics, disproportionate to classical cryptographic methods. The launch of Micius and the records set by scientists and engineers, which create quantum communication systems with its help, have been compared to the influence of Sputnik on the space race in the 20th century. Similarly, the quantum race has political and military implications that are hard to ignore. Mr. Jian-Wei was accused of disclosing Internet surveillance information by Western governments in 2013, prompting China to increase research in quantum cryptography to create safer communications tools. As a result, Micius was named Sputnik for ultra-paranoid. In theory, any country could trust Micius in providing tangled photons to ensure the security of its communications. But the satellite is a strategic resource that other countries probably want to replicate, just as Europe, Russia and China currently have their own versions of U.S.-controlled GPS. However, the news of successful long-distance quantum communication is a sign that we are already living in a new era of communication security. This article is republished from Harun Sillak, a research scientist for complex telecommunications systems, Trinity College Dublin under a Creative Commons license. Read the original article. Read next: Your company needs to focus on ethics, respect and inclusion - even if it struggles to survive Tech'tumSatelliteChina If you're an experienced leader, it's damn likely that your communication is too complicated. After all, you spend a considerable amount of time each day dealing with both big picture problems and short-term problems, so you're used to communicating in a complicated way. But that's not really the reason your communication isn't as effective as it might be. Here's a more real problem: You get bored when you have to communicate in a clear, simple, consistent way. I was reminded of this messy little secret while reading The New York Times' Corner Office profiling column by John Lilley, a partner at venture capital firm Greylock Partners. Mr. Lilly admitted to one of his early start-up companies: I was bored of saying the same thing every day. So I decided that I would change it a bit. But then everyone had a different idea of what I was thinking, because mixed it up. You might as well admit it: It happened to you. You. a few years ago, I was working with the CEO of a telecommunications company who was upset because his employees didn't understand the key aspects of the strategy. I finally realized that I was communicating with employees just as I was sharing information with my management team: adopting a nuanced, multi-layered approach that was constantly changing as we got new information, said the CEO. But in the end I realized that I wasn't as simple and consistent as I should have been. I had to teach myself to decide what I was going to say - based on what the staff needed - and then say it over and over, far beyond the point that I was tired of talking about it, explained the CEO. So what does this mean for you, with a notoriously low threshold of boredom? Here are 5 things to keep in mind: Your team members aren't stupid, but they're busy and they have a different perspective than you. So help them understand even complex issues by making communication as simple and understandable as possible. Communication is not about you. You communicate to engage team members rather than polish your own image as a smart, driven leader. Great marketers, politicians and even preachers know that creating a basic message framework is the key to achieving attention and consistency. So solve three to five things that are most important to your organization, and make sure they are part of every major message. Communicating once is almost never enough. Smart leaders keep repeating basic messages, even past the point where they think everyone is getting it. (They don't.) Encourage questions by asking them. When you meet with team members, ask, What prevents us from achieving this? What do you hear from customers and suppliers who will help us or harm us? What do we need to talk about to make this happen? Commons Growing military tensions between China and the US are not limited to the sea, air and the Internet. A new Bloomberg report says China may be working to block U.S. military communications from space. The story is based on a report by the University of California on global conflicts and cooperation. The Institute warns of all kinds of crazy future war, including that the U.S. (and the rest of the world) need to prepare for a potential game of changing space war with China that could affect Internet access and communications around the world. Part of China's strategy will be to shoot satellites from orbit, something it experienced last year in a show of strength as it seeks to become the world's leading off-planet power. Says report: Although China is probably truthful when it says it is not in the space race, such statements mask the true purpose of its space program: to become militarily, commercially, and economically as like the United States in space. The report was presented to the executive branch as President Obama ramps up his efforts to get a 7.7 percent increase in the Defense Department's budget. This content is created and supported by a third party and is imported to this page to help users provide their email addresses. You may be able to find more information about this and similar content on piano.io piano.io satellite communication short notes pdf. short notes on satellite communication. write short notes on communication satellite

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