

FEBRUARY 26, 2021 1:44 PM AEDT

Science

Councils ask residents what they want fro

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Timeline
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Queens Park Tennis Centre opens 10 new courts 6:34 PM AEDT

Drugs, cash, cars and a firearm seized after warrants 6.28 PM AFDT

Proposed Clive Palmer mine moves to assessment stage -Reef concerns need urgent consideration

6:24 PM AEDT

High smoking dependence linked to depression 6:22 PM AEDT

Changing Silkworm's Diet to Spin Stronger Silk 6:12 PM AEDT

RUN welcomes invitation to consult on university research commercialisation 6:12 PM AEDT

APRA revokes Xinja Bank's authorised deposit-taking institution licence

6:08 PM AEDT

Amadeus and Microsoft form strategic partnership to drive future innovation in travel 6:04 PM AEDT

Global pandemic boosts feeling of Australia as lucky country 6:02 PM AEDT

UK's global fintech leadership bolstered by new review 6:02 PM AEDT

Planned burns 5:58 PM AEDT

NWRIC CEO Week in Review 26 February 5:48 PM AEDT

Budget review yields positive step for Council 5:36 PM AEDT

Efficiency measures across DHBs to make best use of vaccine 5:22 PM AEDT

NTU Singapore scientists develop laser system t generates random numbers at ultrafast speeds



An international team of scientists has developed a system that can generate

random numbers over a hundred times faster than current technologies, paving the way tow faster, cheaper, and more secure data encryption in today's digitally connected world.

The random number generator system was jointly developed by researchers from Nanyang Technological University, Singapore (NTU Singapore), Yale University, and Trinity College Dut made in NTU.

Random numbers are used for a variety of purposes, such as generating data encryption key one-time passwords (OTPs) in everyday processes such online banking and e-commerce to s their security.

The system uses a laser with a special hourglass-shaped cavity to generate random patterns are formed by light rays reflecting and interacting with each other within the cavity. By readin patterns, the system generates many series of random numbers at the same time (see Imag

The researchers found that like snowflakes, no two number sequences generated using the were the same, due to the unpredictable nature of how the light rays reflect and interact wit other in the cavity.

The laser used in the system is about one millimeter long, smaller than most other lasers. It energy efficient and can be operated with any household power socket, as it only requires a ampere (1A) current.

In their study published in one of the world's leading scientific journals Science on 26 Februa the researchers verified the effectiveness of their random number generator using two tests including one published by the US National Institute of Standards and Technology.

The research team has proven that the NTU-made random number generator which is faste more secure than existing comparable technologies, could help safeguard users' data in a we that is steadily relying more on Internet transactions (see Image 2).

Professor Wang Qijie from NTU's School of Electrical and Electronic Engineering & School of I and Mathematical Science, as well as The Photonics Institute, who led the NTU team involvec international research, said, "Current random number generators run by computers are che effective. However, they are vulnerable to attacks, as hackers could predict future number sequences if they discover the algorithm used to generate the numbers. Our system is safer

2/26/2021

NTU Singapore scientists develop laser system that generates random numbers at ultrafast speeds | Mirage News

A call for charging points at home

5:18 PM AEDT

A new course at University of Helsinki offers sustainability skills to students of all fields 5:16 PM AEDT

Queensland secures Season 2 of the Wilds

5:14 PM AEDT

Grants writing workshops to help community groups

5:10 PM AEDT

Yumaanda Gathering – Acting CEO Statement

5:08 PM AEDT

U.S. 5th Fleet Response to COVID-19 Aboard USS San Diego and USS Philippine Sea

5:08 PM AEDT

Fine and conviction for company caught operating dilapidated barge in Pittwater

5:05 PM AEDT

uses an unpredictable method to generate numbers, making it impossible for even those will same device to replicate."

Dr Zeng Yongquan, a Research Fellow from NTU's School of Physical and Mathematical Scien who co-designed the laser system, said: "Our system surpasses current random number gen as the method can simultaneously generate many more random sequences of information *a* even faster rate."

The team's laser system can also generate about 250 terabytes of random bits per second – than a hundred times faster than current computer-based random number generators.

At its speed, the system would only take about 12 seconds to generate a body of random nu equivalent to the size of information in the largest library in the world – the US Library of Cor

Elaborating on the future of the system, the team is working on making the technology ready practical use, by incorporating the laser into a compact chip that enables the random number generated to be fed directly into a computer.

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