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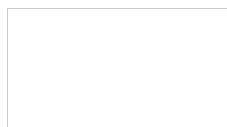
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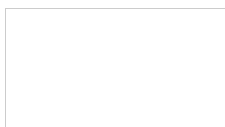
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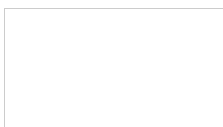
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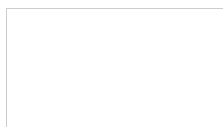
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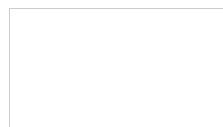
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TELECOMMUNICATIONS

World record 26 terabits per second data transmission achieved

By [Darren Quick](#)[9 Comments](#)

22:48 May 23, 2011



Professor Jürg Leuthold led an experiment that achieved a data transmission rate of 26 terabits per second (Image: Gabi Zachmann)

With video content consuming ever more bandwidth, the need for faster data transmission rates has never been greater. Now a team of scientists at Germany's Karlsruhe Institute of Technology (KIT) are claiming a world record in data transmission with the successful encoding of data at a rate of 26 terabits per second on a single laser beam and transmitting it over a distance of 50 km (31 miles). The scientists claim this is the largest data volume ever transported on a laser beam and enables the transmission of 700 DVD's worth of content in just one second.

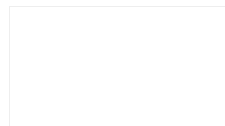
With no electronic processing methods available for a data rate of 26 terabits per second, the team developed a new opto-electric data decoding process. This process relies on purely optical calculations to break down the initial high data rate into smaller bit rates that can then be processed electrically. The record-breaking data encoding also employed the [orthogonal frequency division multiplexing](#) (OFDM) scheme based on [Fast Fourier Transformation](#) (FFT) mathematical routines that is commonly used in mobile communications networks including digital TV and audio broadcasts.

Because energy is required for the laser and a few process steps only, the team says the new method is not only extremely fast, but also very energy efficient.

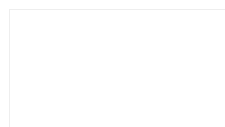
"Our result shows that physical limits are not yet exceeded even at extremely high data rates," says Professor Jürg Leuthold, who led the KIT experiment. "A few years ago, data rates of 26 terabits per second were deemed utopian even for systems with many lasers and there would not have been any applications. With 26 terabits per second, it would have been possible to transmit up to 400 million telephone calls at the same time. Nobody needed this at that time. Today, the situation is different."

The latest breakthrough follows on from the previous high-speed data transmission record set by the KIT scientists in 2010, when they successfully exceeded the data rate of 10 terabits (or 10,000 billion bits) per second.

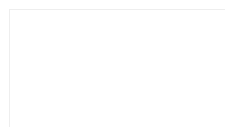
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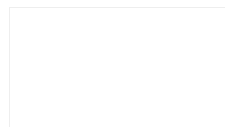
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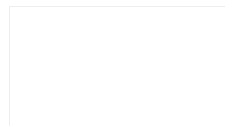
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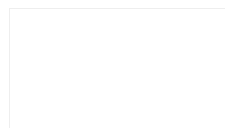
New wireless Pan/Tilt/Zoom IP Camera enables remote-control video through a web browser for US\$300



iPhone app helps you find your parked car



The world's fastest and cheapest internet connectivity



Retro telephone gets 21st century update

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The [KIT](#) experiment involved companies and scientists from all over Europe, including members of the staff of Agilent and Micram Deutschland, Time-Bandwidth Switzerland, Finisar Israel, and the University of Southampton in Great Britain. The experiment is detailed in the journal [Nature Photonics](#).

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User Comments (9)

Simply amazing. Its stuff like this that gives me hope for the future. I don't understand why governments are spending money on green energy which really isn't good for the environment and no one really wants. I imagine if governments funded projects like this the world would be a much better place..

Michael Manton - May 24, 2011 @ 06:24 am PDT

I'm afraid this is a throwaway claim. We need to know who else is competing, how the process works, is the KIT contribution unique or a slight increase in an extant method.

Is this a part of the recent surge of German rearmament projects?

Who are the actual sponsors and funders?

This may be a wonderful achievement or a modest one. This Gizmag is not Nature or Physics Today but it does have responsibility outside HYPE to its readers if it wants to keep us looking. A couple more meaningless articles like this with no references and it's Bye Bye. Note that the reference of Nature Photonics is inaccessible to those without an expensive subscription to this publication.

attoman - May 24, 2011 @ 10:37 am PDT

To Michael: You are so right our pliticians will only wake up when we have nothing to eat and drive ox waggons again!

The silent majority is not behind all this green crap! The are just to lazy to open there mouth!

snowbaon - May 24, 2011 @ 10:55 am PDT

this are the kind of news that make one's day, i mean right now my imagination is running at near light speed imagining all the applications of this technology, and to Michael Manton, maybe you don't want green energy but i'm pretty sure your statement : no one really wants" is quite err and if they are green then they are good or at least less bad than the common ones

Hans Cabrera - May 24, 2011 @ 12:10 pm PDT

Agreed Michael, this IS a very usable and viable technology, and no Hans people do not want "green energy" jammed down there throats, it's pure politics and bad for all economy's just check out how devastating it's been to Spain. I do believe there are spin off technology's from this that we have yet to even dream of and THAT will lead to a cleaner environment and more efficient use of resources. :-)

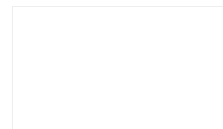
mrhuckfin - May 24, 2011 @ 03:25 pm PDT

The distance component is the most interesting aspect to me. I'd like to know more about the conditions of the actual experiment, and what kind of interference/signal degradation issues they encountered.

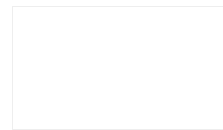
Racqia Dvorak - May 24, 2011 @ 06:27 pm PDT

While I am happy they are braking boundaries for the big trunk lines; until they figure a way to make it economical to run fiber optic cabling into houses most of us will still be dealing with DSL (two small copper telephone wires) and cable (one somewhat larger copper cable).

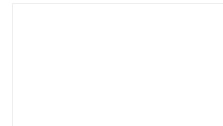
[The Future - how wireless communications will evolve over the next 20 years](#)



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[Eight sweet free iPhone apps we love - and 4 we can't get](#)




[Optical system could revolutionize underwater communications](#)

Information can only be transmitted at the speed of the smallest bottleneck....

 **Dennis** - May 24, 2011 @ 07:27 pm PDT

That's pretty amazing, but there are not many devices, if any, that could handle a ridiculous data stream like this. This certainly wouldn't apply to point-to-point file transfers as even the fastest SSDs write well below 1GB/sec. This thing is transferring over 3000 times that amount!

 **Stradic** - May 25, 2011 @ 01:01 pm PDT

German rearmament projects? I'm sorry, what now?

 **Adam Nightingale** - May 25, 2011 @ 11:28 pm PDT

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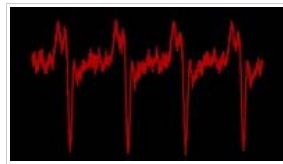
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