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# NewScientist

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## Ditch the dusty journals and log on to labcam

The rise of video webcasting is bringing the trials and triumphs of science to a whole new audience

MATTHEW BUSSE

A GLOWING cloud of plasma pulses as it deposits gold nanoparticles onto a sheet of carbon nanotubes. Frédéric Demoisson stands in front, describing for the camera the pressure chamber that he built for the job. But this isn't just any science documentary. The camera is held by one of Demoisson's lab mates, and the resulting video

will be posted on YouTube.

Demoisson and his colleagues at the Free University of Brussels (ULB) in Belgium are taking part in a project called Nano<sup>2</sup>hybrids, the first reality series to feature scientists as its stars ([www.nano2hybrids.net](http://www.nano2hybrids.net)). He is one of 15 scientists scattered across Europe taking part in Nano<sup>2</sup>hybrids, which will follow these researchers as they try to fuse metals with nanotubes to

create hybrid materials that could function as ultra-efficient gas sensors. The goal is to convey the exciting and human aspects of scientific research.

The project, which launched two weeks ago, is funded by the European Union and the UK-based non-profit Vega Science Trust, which itself broadcasts free science clips over the internet. Far from being alone, though, it is one of a host of new science websites experimenting with videos starring scientists, from glimpses of life in the lab to debates between luminaries.

Some aim to bring science to lay web surfers straight from the horse's mouth, while others are hoping to change the way science itself is done by making research easier for other scientists to reproduce (see "Do try this in your lab", below). All have the power to present a more realistic picture of how the process of science occurs.

TV is already the dominant format for communicating science. In November 2006, the Pew Internet and American Life project based in Washington DC found that it is the general public's number one portal for

science information, with the internet a close second. However, with the rise of broadband internet connections, people are increasingly getting their video fix, and that means science communicators have to keep up. "We have to be looking pretty closely at online video as an outlet for the public understanding of science," says Stewart Wills, online editor of the journal *Science*, based in Washington DC.

Online video also presents opportunities that don't exist in printed outlets or traditional broadcasting. One is the ability to bring the scientific process to life, as the Nano<sup>2</sup>hybrids team is showing with video updates from the lab. The show's scientists hope this record of their experiences during the three-year project will breathe life into work that would otherwise be publicised only in jargon-filled research papers.

"Real science, when it's happening, is very much alive, there's things that are working, things that are not, problem solving, and there's all the social elements of science, what we're doing and how we're doing it together," says Nano<sup>2</sup>hybrids science communications coordinator Chris Ewels, who works at the French national research agency CNRS in Nantes.

Another venture capturing the human aspect of science using video is the Global Education Outreach for Science, Engineering and Technology ([www.geoset.info](http://www.geoset.info)), a site created by Nobel prize-winning chemist Harry Kroto at Florida State University in Tallahassee. He wants to bring videos of scientists talking about their work into schools, and says that teachers could show the GEOSSET videos during class to illustrate the scientific process. "We've been bleating for too long about fact that there are no science teachers," Kroto says. "Well, let's work with the teachers we have and make available to them a cache of science education presentations or materials they can use in the classroom."

Another advantage of online

### DO TRY THIS IN YOUR LAB

Internet video is changing how scientists communicate not only with the public but also with each other.

For several years scientific journals have posted video animations of data online. However, these movies have usually been only a few minutes long and devoid of explanation. Now two websites are using video to improve the quality of communication between researchers.

SciVee ([www.scitube.tv](http://www.scitube.tv)), launched in June, is designed as a "YouTube for scientists". Researchers post a 10-minute video describing the salient findings of their paper. Viewers can then watch the video using software that synchronises it to the relevant section of the paper.

SciVee's creator, Phil Bourne, a pharmacologist at the University of California, San Diego, hopes that the site will spark more interest in online social networking among scientists. He

laments that the "energy and creativity" surrounding such sites have "largely passed over science".

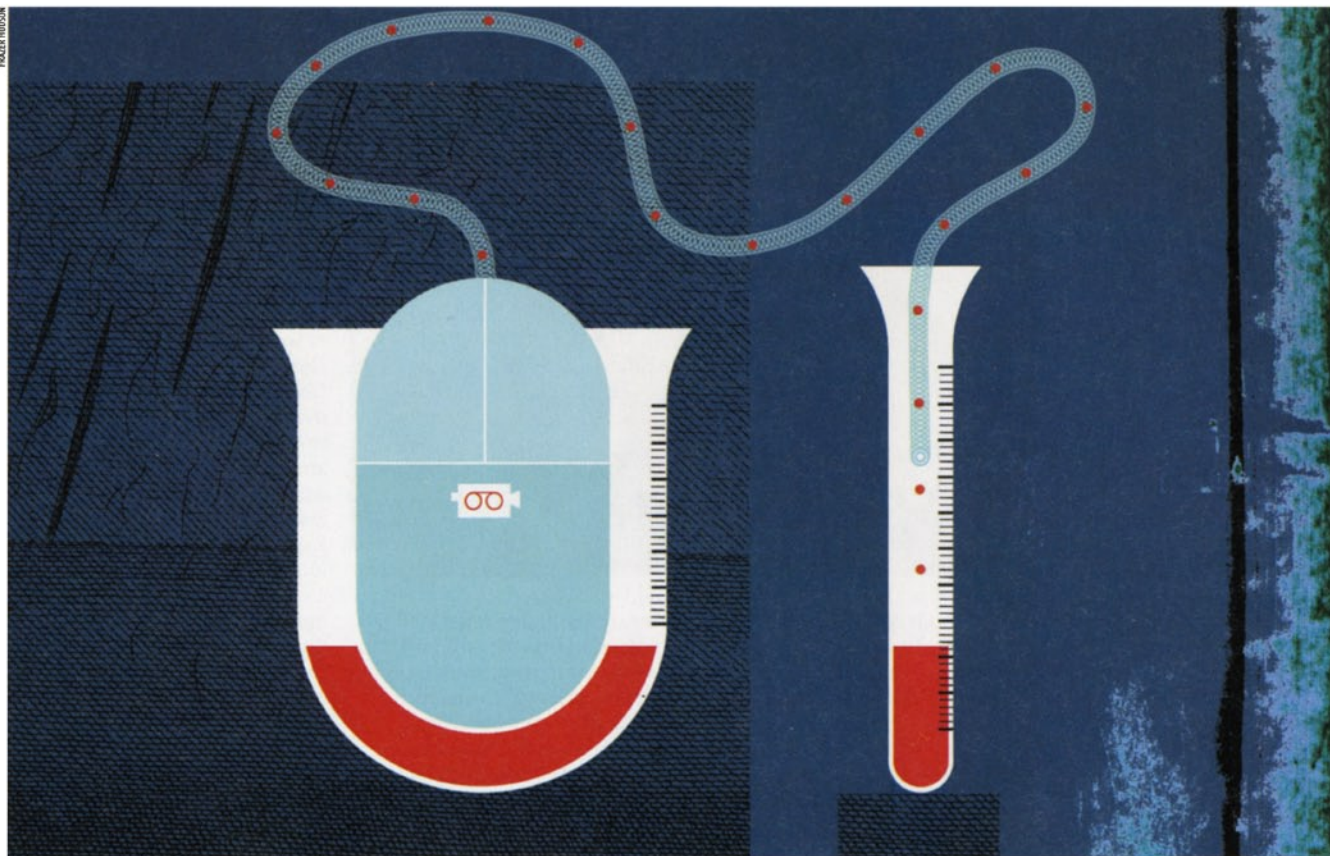
Online video might also make research more transparent and reproducible. That's the aim of the Journal of Visualized Experiments or JoVE ([www.jove.com](http://www.jove.com)). Launched in October 2006, it features videos of scientists explaining how they did their experiments. Reproducibility is one of the foundations of the scientific method, yet recreating an experiment from a written protocol can be next to impossible. By offering a collection of how-to videos, JoVE will make it easier for scientists to repeat others' work.

According to JoVE's Boston-based editor-in-chief, Moshe Pritsker, scientific publication now plays such an important role in a scientist's career that it has overshadowed its original purpose. "What we are trying to do

is improve its original role, which is reporting the science, how it is done," he says.

Although it is too soon to judge what impact SciVee and JoVE will have on the scientific process, their potential to improve communication is huge. "A lot of the persuasion and demonstration of scientific ideas, on a scientist-to-scientist level, happens in the context of scientific meetings. In some ways, you can view sites like these as decentralised scientific meeting places," says Stewart Wills, online editor of the journal *Science*, based in Washington DC.

At the Massachusetts Institute of Technology, researchers are being encouraged to post video footage of their work to a "beta" version of a video site called TechTV. MIT declined to comment on the site because it is not ready for the public, but the site says its mission is to "support community".



video is that, unlike traditional broadcasting, there is no limit on how much footage you can post, allowing viewers to control their intake, and often to better understand the background to the research.

"On the web, you can put out a huge amount of content, which allows people to get the full context in which information is presented," says Roger Bingham, a cognitive scientist at the University of California, San Diego, and director of online science video site The Science Network (TSN). "We wanted to create a site where people can actually look at the information as it came out, uncut, unedited, and make their own decisions." Freeing scientists from what he calls "the tyranny of the sound bite" has the potential to deepen the public's understanding of science, he adds.

TSN, which is funded by contributions from various foundations that support science education, such as the US National Science Foundation, aims to deepen the public understanding of science by providing free science videos. Rather than filming scientists in the lab, the organisation instead brings

### "All 15 hours of debate went up online. So far half a million visitors have downloaded it"

together experts and encourages them to have a discussion on issues of science and social policy. It records the debate, then posts the videos online.

One highly successful TSN video was the unedited footage from a symposium the organisation hosted in November 2006 entitled "Beyond belief: Science, religion, reason

and survival" (*New Scientist*, 18 November 2006, p 8). Featuring vocal atheists such as Richard Dawkins and Lawrence Krauss, it attracted a storm of media attention. For those not able to attend, all 15 hours of the debate went up online, and so far more than half a million visitors have downloaded it.

The event also highlighted another advantage of online video: the ability to combine it with online communities. After downloading and watching TSN's recordings of *Beyond Belief*, 22-year-old Ezadkiel Marbella founded a group for discussing the symposium on the popular social networking site Facebook. "I wanted to

create a hub of what people thought about the issues that were discussed in the videos on the website," says Marbella, who studies software development at Seneca College in Toronto, Canada.

Online broadcasting will only broaden the public's understanding of science if the videos are accurate and reliable. One downside to video sites like YouTube and Google Video is that anyone can post a video claiming to present scientific information without validation (<http://tinyurl.com/222ejj>). However, that only emphasises the value of sites run by and featuring scientists, such as the Science Network and Nano<sup>2</sup>hybrids. Of TSN, Marbella says: "You can trust what the people are saying. This is the expert, talking about what the expert knows." ●