

SPECIAL REPORT

Named and shamed

As accusations of scientific misconduct in China become rife, some fear persecution reminiscent of that used in the Cultural Revolution.

Chinese science risks being sliced up by a double-edged sword: rampant scientific misconduct on the one hand, and persecution based on false accusations on the other.

The lack of confidence in official mechanisms for properly investigating fraud has led to increased reliance on websites that challenge the records and publications of Chinese scientists. But many are concerned about the damage such untested allegations can cause; more than 100 Chinese scientists based in the United States have sent an open letter to the Chinese government, asking it to set up mechanisms to ensure that claims of scientific misconduct are investigated fairly.

China admits it faces a serious problem with scientific misconduct, including plagiarism, and the fabrication and falsification of data. The scale of the problem is unknown, but a recent spate of allegations has drawn attention to the issue.

In March, Hui Liu, the vice-dean of Tsinghua University medical school in Beijing, was fired, following claims that he had boosted his publication list with papers by another H. Liu (see *Nature* 440, 728; 2006). Liu has reportedly denied the charges and blamed the mix-up on a clerical error. In April, Sichuan University in Chengdu was criticized by the Chinese media for finding one of its professors innocent of fabricating a paper; the paper has been under

attack since its publication in 2000. And two weeks ago, Jin Chen of Shanghai's Xi'an Jiaotong University, whose announcements of one of China's first digital signal-processing chips in 2003 stoked patriotic fervour, was condemned by his university for faking research and stealing designs from a foreign company.

In all three cases, a popular Chinese-language website known as New Threads (www.xys.org), which has a reputation for disclosing scientific fraud in China, played a key role in fuelling public outcry.

In the first two cases, postings of the accusations on New Threads led to the Chinese media picking up on the stories. And the website's owner, Shi-min Fang, a biochemist based in San Diego, California, claims he was the first to post the name of Chen's company which supposedly re-labelled foreign chips.

The power of the website to implicate scientists in the absence of adequate formal mechanisms of investigation has put it at the centre of concerns over claims of misconduct.

Xin-Yuan Fu, an immunologist at Indiana University in Indianapolis, says it was the Sichuan University case that drove him to write a letter to key science-policy officials, including China's science and technology minister and the head of the Chinese Academy of Sciences, asking them to take action. The letter struck a chord among his peers — within five days of

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Fallen from fame: Jin Chen, creator of a signal-processing chip, was condemned by his university for faking data.

circulating it to other Chinese biologists based in the United States, Fu's letter had collected 120 signatures, including those of two researchers in China. "I was overwhelmed," says Fu.

After noting the need to expose all types of misconduct, the letter focuses on the problem of unfounded allegations, particularly those that attack scientific claims without giving evidence of faulty laboratory procedures. It ends by condemning the tendency to make "personal attacks anonymously in public... in the absence of proper investigation".

Fu says the Sichuan University incident is a case in point. Yuquan Wei, vice-president of the university, published a paper in *Nature Medicine* in 2000 detailing the use of foreign endothelial cells as a vaccine to prevent tumour growth. The paper claimed success in mice and suggested the technique could work in humans (*Nature Med.* 6, 1160–1166; 2000).

But Lusheng Si, an immunopathologist at Xi'an Jiaotong University who first came across the paper when reviewing a grant proposal by Wei in 2001, suspected that it contained fabricated data. On 26 March this year, after hearing that Wei was using the paper to request a further large grant, Si attacked the paper on New Threads.

The letter led to a media fury in China and an investigation by Wei's university. Sichuan concluded that Wei had committed no offence, and that the dispute over Wei's

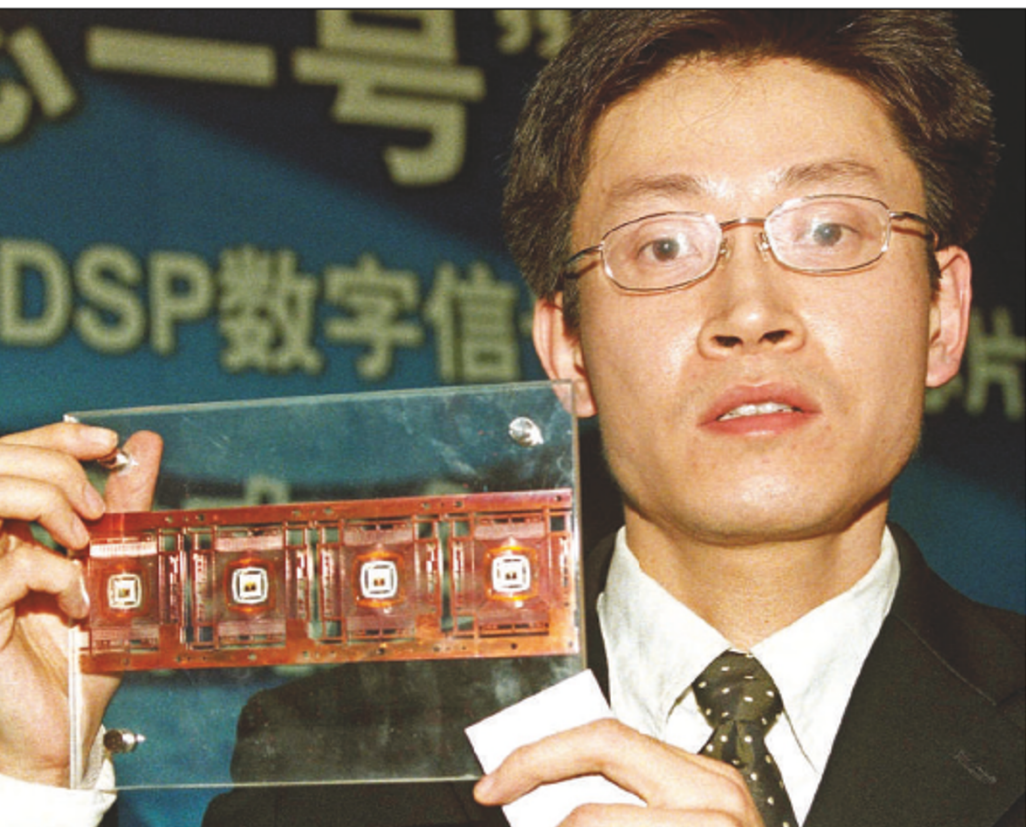


Accusations of scientific fraud posted on websites remind some of the posters used to persecute 'government enemies' in the 1970s.

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research was simply a run-of-the-mill academic disagreement. The media in China has continued to criticize Wei and Sichuan University, but many scientists think Si's attack was irresponsible and based on unsound interpretation of scientific concepts and procedures.

Si contends, for example, that the mouse immune system should respond to all proteins in foreign cells, whereas Wei's paper suggests that immunized mice selectively respond to a few antigens. "This violates a fundamental law of immunology," Si says.

But Lieping Chen, an immunologist at Johns Hopkins University School of Medicine in Baltimore, Maryland, and a signatory to Fu's letter, disagrees with Si. Chen says that a selective immune response to one or a few foreign proteins is an aspect of well-known phenomenon known as immunodominance.

Si also questions the number of mice Wei used, estimating this to be around 40,000. "This is too big to believe," he says. Wei, backed by Chen, says Si has miscalculated the number, and that less than 5,000 mice were actually used.

But even those who defend Wei admit that his response hasn't helped. For example, Si claims that Wei has so far refused to release his raw data, which most agree would settle the issue. Wei told *Nature*, "I did not say I cannot release raw data for inspection", but he has not clarified whether he will make his

data available. He has denied all misconduct.

The university's investigation into the matter has failed to convince many that the truth won out, mainly because it lacked transparency. "The recent self-investigation into alleged fraud at Sichuan University is a total joke," says Mu-ming Poo, a neurobiologist at the University of California, Berkeley, and head of the Institute of Neurosciences in Shanghai. *Nature's* request for details on the university procedure and an introduction to members of the investigation committee was referred to Wei; as *Nature* went to press he had not provided any information about the investigation.

Poo believes the incident is indicative of the fact that most Chinese universities lack the capacity to investigate one of their own. "The outcome is likely to be influenced by the university's own interests, such as protecting its reputation," he says.

Fu's letter, sent on 8 May, calls for greater involvement of higher-level funding bodies such as the science ministry, the Chinese Academy of Sciences (CAS) and the Natural Science Foundation of China (NSFC).

These institutions already have investigatory bodies. The CAS established its ethics committee in 1997 and drafted guidelines in 2001. The NSFC committee, established in 1998, says it investigated 445 allegations of

misconduct in its first five years (out of an estimated 30,000 projects that it funded during that time). In the most severe cases, the committee indefinitely blocks perpetrators from applying for funds.

But many scientists feel these committees are ineffective, and a lack of confidence in their ability to settle matters is driving those with grievances to publish them on the Internet. For example, Si says he considered sending his complaint to the CAS or to the science ministry, but he was unable to find contact details for either. So he posted his accusation on New Threads instead. *Nature's* attempts to contact the committees of the CAS and the NSFC were also unsuccessful.

"It is the [effective] absence of such formal mechanisms that makes New Threads important," says Fu. But Fu, a human-rights advocate, is worried that the media frenzy following irresponsible web-based accusations, particularly by those who don't identify themselves, harkens back to China's 'big letter' posters or 'dazibao'.

These wall-mounted handwritten posters were used to persecute those considered enemies of the government during the Cultural Revolution in the 1970s. "Anyone could write anything, and people would read it and assume it was right," says Chen. "It would be a terrible thing to go through again, in academia."

Fang, who has been widely praised since setting up his website in 2001 for exposing bad science and trying to raise the profile of research ethics in China, defends his postings. He says he only accepts about 10% of submitted

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letters, and that he only publishes allegations from correspondents who identify themselves to him. He adds that he does some preliminary investigation and sometimes asks outside experts for their opinions.

But several scientists have written to *Nature* to express concern over how powerful Fang's website has become, saying they are afraid to be named for fear of becoming his enemy.

Ideally, Fu says he would like to see China establish a new agency staffed by experts trained in scientific misconduct that could investigate claims of fraud, akin to the US Office of Research Integrity. That would certainly be necessary to resolve the case of Si versus Wei, says *Nature Medicine's* editor-in-chief Juan-Carlos Lopez. "There's been enough of this 'he said, she said' nonsense," says Lopez. "It's time for the competent authorities to get involved."

How likely that is to happen is unclear. Fu and his co-signatories have yet to receive any response from the Chinese authorities. ■

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