Research Scientist point of view on Open Science Challenges

Achille Giacometti

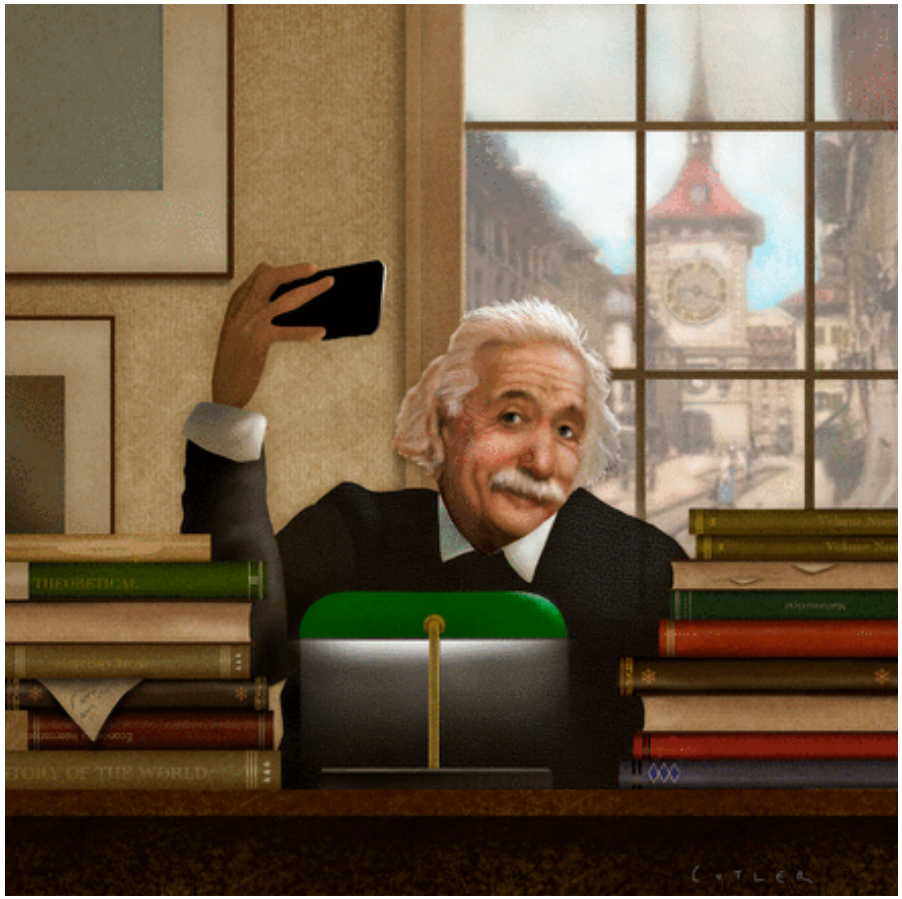
New Roles in Open Science and Data Stewardship, Venice 25 November 2016

The Pressure for Self-Promotion

Science in the age of selfies

9384–9387 | PNAS | August 23, 2016 | vol. 113 | no. 34

Donald Geman[a,1] and Stuart Geman[b,1]



These days, scientists spend much of their time taking "professional selfies"—effectively spending more time announcing ideas than formulating them. Image courtesy of Dave Cutler.

What's the problem?

UNDER PRESSURE

YOUNG RESEARCHERS ARE HAVING TO FIGHT HARDER THAN PAST GENERATIONS FOR A SMALLER SHARE OF THE ACADEMIC PIE.

BY BRENDAN MAHER AND MIQUEL SUREDA ANFRES
DESIGN BY JASIEK KRZYSZTOFIAK

Scientists and policymakers around the world increasingly worry about the plight of young researchers in academia, and for good reason. Competition for tenure-track positions has surged, and some early-career researchers face tough odds in the quest for funding. As a result, many see lower pay–offs for their efforts in preparing and writing grant applications. Although everyone is under pressure, those just starting out seem to feel the impacts more acutely.

YOUNG SCIENTISTS
A *Nature* special issue
nature.com/youngscientists

2012

NEWS FEATURE

446 | NATURE | VOL 538 | 27 OCTOBER 2016

YOUNG, TALENTED AND FED-UP

BY KENDALL POWELL

Martin Tingley was coming undone. It was late autumn 2014, just over a year into his assistant-professor job at Pennsylvania State University in State College, and he was on an eight-hour drive home after visiting his wife in Boston. He was stressed, exhausted and close to tears. As the traffic zipped past in the dark hours of the early morning, the headlights gave him the surreal feeling that he was inside a video game.

Usually, Tingley thought of himself as a "pretty stoic guy" — and on paper, his career was going well. He'd completed a master's degree in statistics and a PhD in Earth science, both at Harvard University. With these, and four years of postdoctoral experience, he had landed a rare tenure-track faculty position. He thought he would soon be successfully combining statistics and climate science to produce the type of interdisciplinary research that funding agencies say they want.

In fact, scientific life was proving tough. He found himself working 60–80 hours per

Scientists starting labs say that they are under historically high pressure to publish, secure funding and earn permanent positions — leaving precious little time for actual research.

Young scientists and senior scientists alike feel an acute pressure to publish and are weighed down by a growing bureaucratic burden, with little administrative support. They are largely judged on their record of publishing and of winning grants — but without clear targets, they find themselves endlessly churning out paper after paper. The crucial question is whether this is harming science and scientists. Bruce Alberts, a prominent biochemist at the University of California, San Francisco, and former president of the US National Academy of Sciences, says that it is. The current hyper-competitive atmosphere is stifling creativity and pushing scientists "to do mediocre science", he says — work that is safe and uninteresting. "We've got to reward people who do something differently."

Our informal survey suggests that the situation is already making research an unwelcoming career. "Frankly, the job of being a principal investigator and running a lab just looks horrible," wrote one neuroscientist from the United States. Tingley wouldn't disagree.

Misconducts

Now Available: Innovators Under 35 2013 SEE THE 2013 LIST »

MIT Technology Review

INNOVATORS UNDER 35 2002

Jan Hendrik Schön, 31

Nanotechnologies

Lucent Technologies Bell Labs

Hendrik Schön is reinventing the transistor at the place it was born. He and his Bell Labs coworkers have produced single-molecule transistors whose electrical performance is comparable to that of today's best silicon devices but which are hundreds of times smaller. Making such molecular transistors, which could lead to ultrafast, ultrasmall computers, has been a goal of researchers for years; Schön's clever design established Bell Labs as a leader in the race. But Schön is not interested in simply reinventing the transistor. He wants to change the very materials that form microelectronics,replacing inorganic semiconductors with organic molecules. Schön has made an organic high-temperature superconductor, renewing hopes that superconductors could have widespread electronic applications. He also helped devise the first electrically driven organic laser, which could mean cheaper optoelectronic devices. The soft-spoken Schön recalls being "very surprised" by how well his molecular transistors worked. But it won't be a surprise if Schön helps transform microelectronics.

Published online 26 September 2002 | Nature | doi:10.1038/news020923-9

News

Physicist found guilty of misconduct

Bell Labs dismisses young nanotechnologist for falsifying data.

An up-and-coming young physicist at Bell Labs in Murray Hill, New Jersey, has been dismissed after being found guilty of 16 counts of scientific misconduct by a review panel charged with investigating his research.

The panel's report, released yesterday, concludes that Jan Hendrik Schön duplicated, falsified and destroyed data. He showed, says the report, "a reckless disregard for the sanctity of data in the value system of science".

Formerly a rising star in the field of nanotechnology, Schön was renowned for creating field-effect transistors, the backbone of modern electronics, out of tiny molecules. His work won him numerous awards from magazines and scientific organizations, and colleagues were beginning to tip him for a Nobel Prize.

Jan Hendrik Schön, formerly a rising star in nanotechnology

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Misconducts

REPORT OF THE INVESTIGATION COMMITTEE ON THE POSSIBILITY OF SCIENTIFIC MISCONDUCT IN THE WORK OF HENDRIK SCHÖN AND COAUTHORS

September 2002

Property of Lucent Technologies

Misconducts

- On October 31, 2002, *Science* withdrew eight papers written by Schön
- On December 20, 2002, *Physical Review* withdrew six papers written by Schö
- On February 24, 2003, *Applied Physics Letters* withdrew four papers written by Schön
- On May 2, 2003, *Science* withdrew another paper written by Schön:
- On March 20, 2003, *Advanced Materials* withdrew two papers written by Schö
- On March 5, 2003, *Nature* withdrew seven papers written by Schön

NEWS BLOG

Schön loses last appeal against PhD revocation

01 Oct 2014 | 15:44 GMT | Posted by alison abbott | Category: Chemistry, Ethics, Physics & Mathematics, Technology

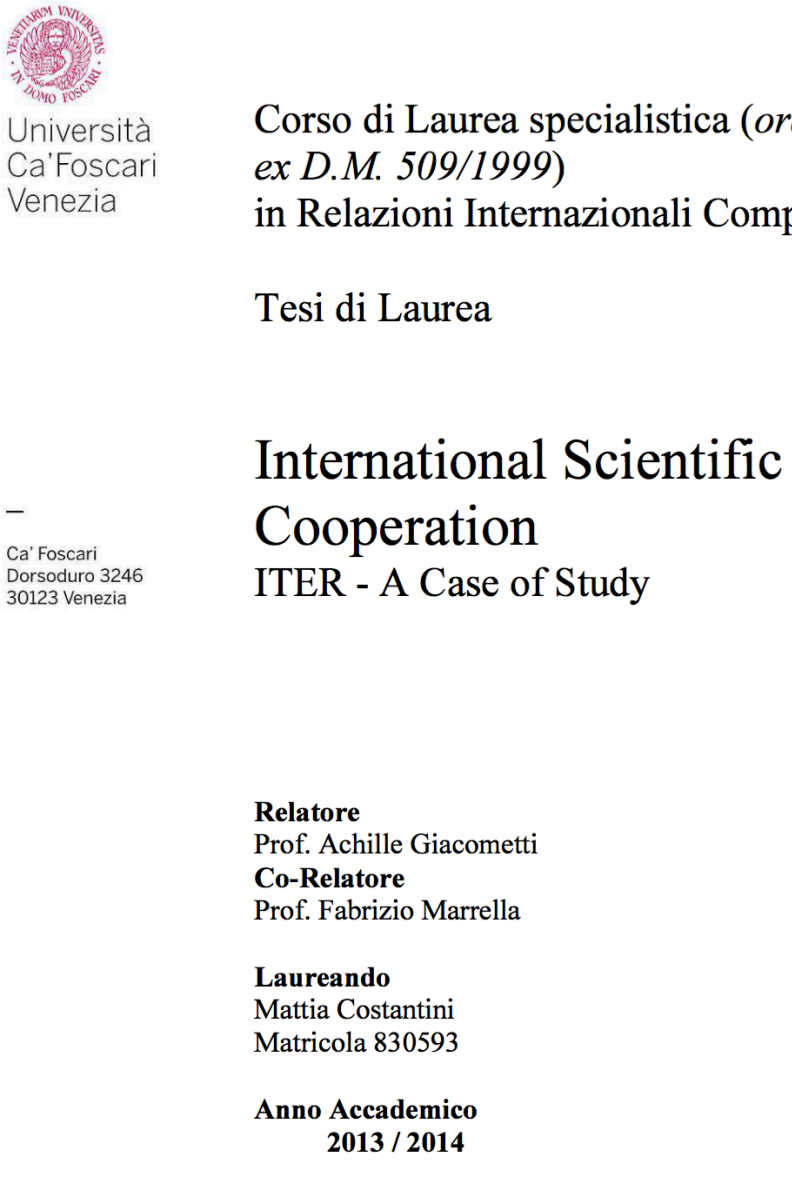
The German Federal Constitutional Court in Karlsruhe has confirmed on 1 October that the University of Constance was within its rights to revoke the PhD thesis of physicist Jan Hendrik Schön, who was dismissed in 2002 from Bell laboratories in Murray Hill, New Jersey, for falsifying research results.

Schön was still in his early 30s when he was dismissed after being found guilty of 16 counts of scientific misconduct.

He had worked in nanotechnology and had been considered a star scientist,

Open Science

- Transparency
- Fairness
- Ethics



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in Relazioni Internazionali Comparate

Tesi di Laurea

International Scientific Cooperation
ITER - A Case of Study

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Prof. Fabrizio Marrella

Laureando
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About

£3,150 (UK and rest of world)
$5,200 (The Americas)
€3,700 (Europe)
¥661,500 (Japan)
RMB33,100 (China)

Drawbacks and Shortcomings

Dear Dr. Giacometti A,

I hope this email finds you well. My colleague asked if I could get in touch with you about a paper you authored entitled "Effects of patch size and number within a simple model of patchy colloids.". Firstly, thank you for taking the time to publish this, it was an interesting read. I am hoping to discuss with you having a short follow-up article or perhaps a review article published in one of the next issues of the Internal Medicine Review. I think our readers would be interested in a paper with information from any continued research or new data since this was published. It would not have to be a long article, but if you don't have time for this perhaps you could ask one of your co-authors or students to collaborate or contribute instead.

If you have moved on from your previous research interests I am certainly interested in knowing more about your current projects; perhaps there is the potential for an article that would be published in our journal. If you have any questions about whether or not a certain subject fits our scope I can put you in contact with Dr. Chadwick Prodromos from our editorial board.

Could you please let me know your thoughts on this?

Sincerely,

Dr. Lisseth Tovar, M. D.

Senior Editor

Drawbacks and Shortcomings

About Those Manipulative Spam Emails from Internal Medicine Review

(https://scholarlyoa.files.wordpress.com/2016/07/internal-medicine-review.jpg)
Complete rubbish.

You have probably received a clever, personalized, and manipulative spam email from a journal called *Internal Medicine Review*. The email includes a purported email exchange between two people at the journal, with one asking the other to invite you to submit follow-up article to your

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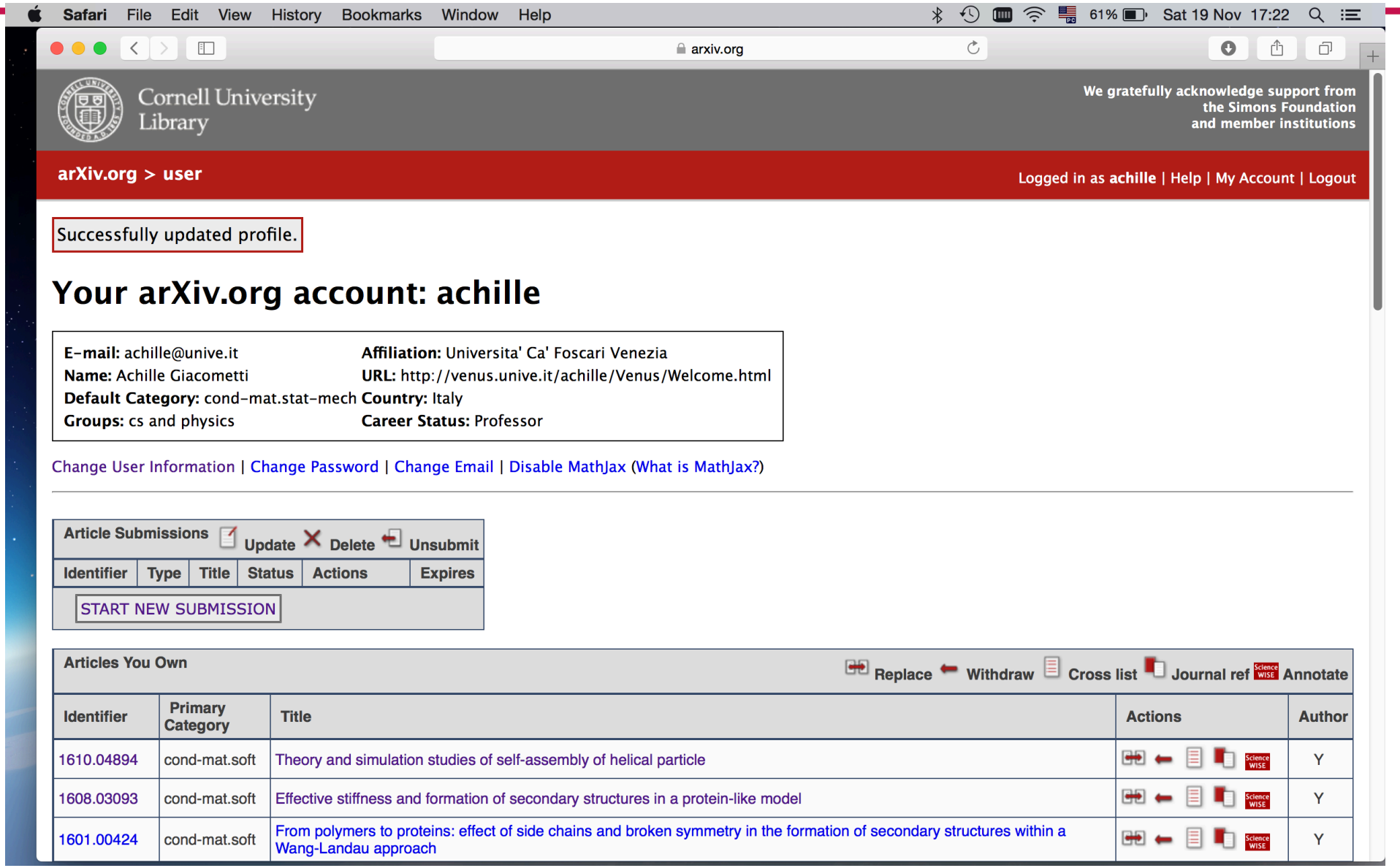
Open arXiv

www.unive.it



NEWS IN FOCUS

602 | NATURE | VOL 534 | 30 JUNE 2016

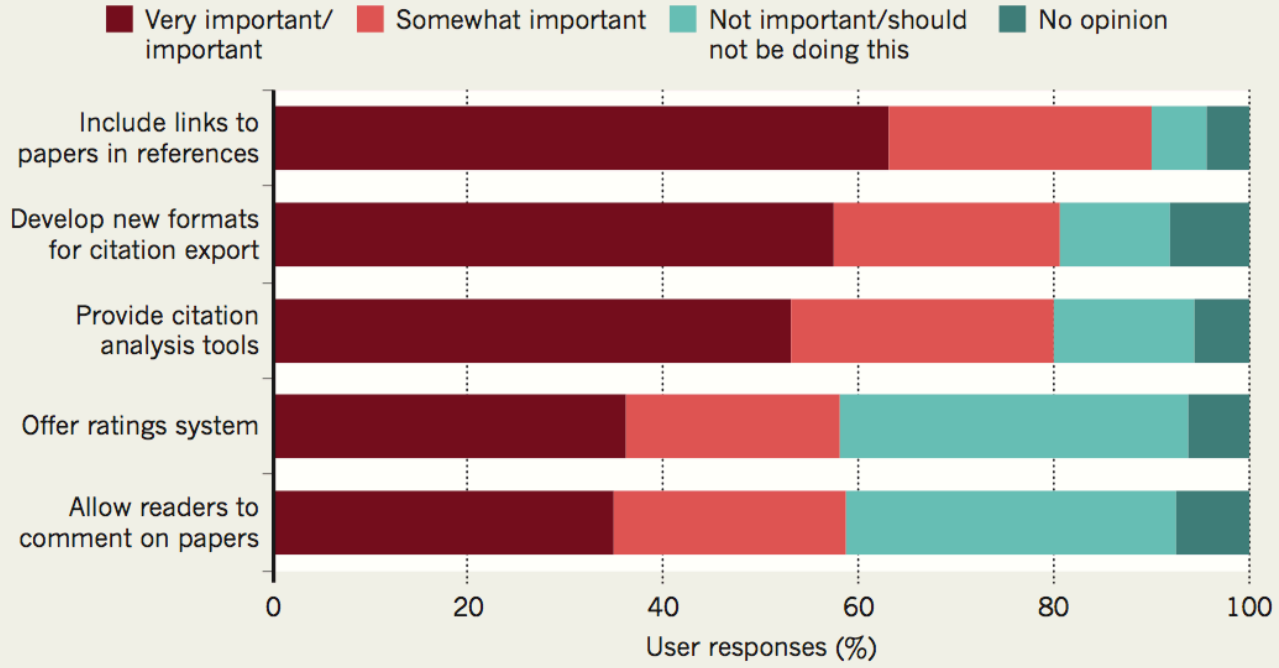
PUBLISHING

Preprint website plans revamp

But users are wary of major changes to arXiv repository.

WHAT DO ARXIV USERS WANT?

The preprint repository got high marks overall from 36,000 respondents to a survey, but there was no consensus over whether the site should add social-media functionalities.



Sharing data and codes

TOOLBOX

DEMOCRATIC DATABASES: SCIENCE ON GITHUB

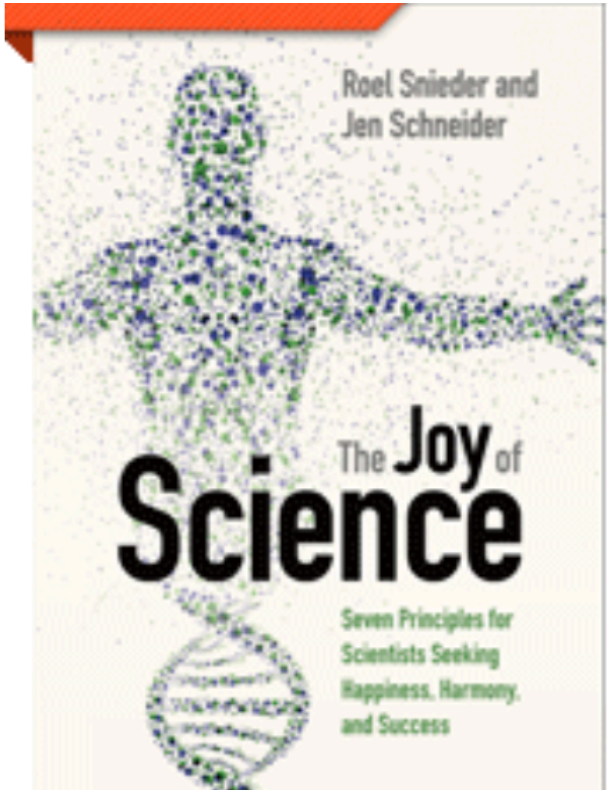
Scientists are turning to a software-development site to share data and code.

6 OCTOBER 2016 | VOL 538 | NATURE | 127

Final Recommendations

- Open Science is desirable
- Open Access ≠ Junk (≠ unethical behaviour)
- Open Access with pubblication charges (pros and cons)
- Open arXiv could be a good model
- We need a new paradigm

Final Recommendations



The Joy of Science

Seven Principles for Scientists Seeking Happiness, Harmony, and Success

Roel Snieder, *Colorado School of Mines*
Jen Schneider, *Boise State University, Idaho*

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