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MONASH UNIVERSITY / ARC CENTRE OF
EXCELLENCE FOR PARTICLE PHYSICS
AT THE TERASCALE

Clem Bastow Fifty Shades could be new era for feminism **OPINION** **PLUS**
ROCK CHIC Julia Zemiro couldn't be happier **GREEN GUIDE** **WORLD**
Fires doom Indonesian orang-utan

WEATHER
Partly cloudy with isolated showers.
7-14
Monday Partly cloudy 9-14
Tuesday Sunny 10-18
Wednesday Mostly sunny 12-22
Thursday Sunny 14-22
Friday Partly cloudy 14-21

THE AGE
THURSDAY, JULY 5, 2012 **NEWSPAPER OF THE YEAR** \$1.70 (R)

Origin of universe revealed

This goes beyond the origin of life. This is the origin of the universe.

By NIGEL BIRCH
SCIENTISTS have taken a giant leap in their understanding of how the universe was formed, with a major announcement in London, and Melbourne, last night that a new particle has been discovered.

The discovery has significant implications for astronomy, not to mention what the universe might be made of.

The particle, which is called the Higgs boson, is the last missing piece of the Standard Model of particle physics, the theory that describes the fundamental particles and forces that make up the universe.

When the particle was discovered, it was found to have a mass of about 125 times that of a proton, which is the mass of the hydrogen atom.

The discovery of a particle that has a mass is a major breakthrough in particle physics, and it is a key prediction of the Standard Model.

The Higgs boson is thought to be the particle that gives other particles their mass. Without it, particles would float freely around the universe, and there would be no stars, planets, or life.

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Scheme to shield fare evaders

By NIGEL BIRCH

A BILLION that goes to about half a million in lost revenue, with a 20 per cent increase in the number of fares being evaded, is the cost of the new fare evasion scheme, according to a report by the Australian Taxation Office.

The report follows a major crackdown on fare evasion, with a 20 per cent increase in the number of fares being evaded, from \$1.8 billion in 2011 to \$2.2 billion in 2012.

The report also found that the number of fare evaders has increased by 20 per cent, from 1.8 million in 2011 to 2.2 million in 2012.

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THE 'GOD PARTICLE'

Physicists used the Large Hadron Collider to search for the Higgs boson, also known as the "God particle," which is thought to give other particles mass, which shapes the universe and everything in it.

Without that mass, all particles would float freely around the universe, not forming into atoms, let alone planets, stars and solar systems.

The collider records the explosions of particles in high-speed collisions, replicating the state of the universe just after the Big Bang. Physicists then work out a particle's identity from its speed, mass, and electric charge.

Physicists applied the announcement last night in Melbourne.

TIPS FOR SUCCESSFUL PUBLISHING

WHY AM I HERE?

Google Scholar
 Monash University

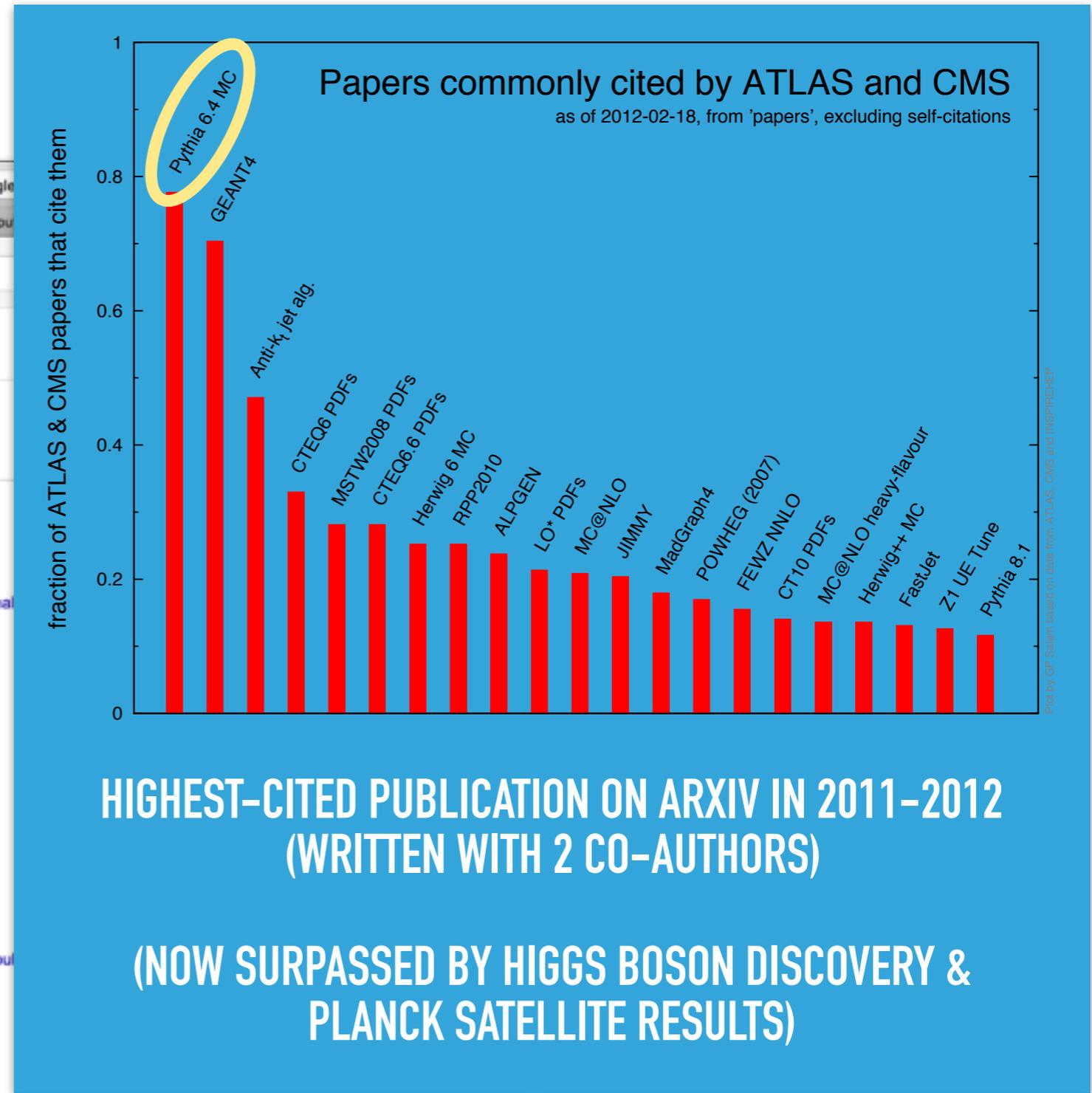
Institutions for Monash University
 Monash University - monash.edu

Andrew J Stewart Coats
 Academic VP, Monash and Warwick Universities
 Verified email at monash.edu
 Cited by 59097
 Heart Failure Hypertension Biotechnology Organisational

Charles Mackay
 adjunct, Monash University
 Verified email at monash.edu
 Cited by 38878
 Immunology

Rachelle Buchbinder
 Professor, Monash University and Cabrini Health
 Verified email at monash.edu
 Cited by 31925
 Musculoskeletal arthritis back pain health literacy shoul

Peter Skands
 Monash University, School of Physics and Astronomy
 Verified email at monash.edu
 Cited by 30896
 Theoretical Physics High Energy Physics Particle Physics Phenomenology QCD



#1 COLLABORATE AND LEARN

Seek every opportunity to go to the best places in the field; work with the best; learn from the best

- ▶ Publish with the best; they will mentor you on what they consider a good paper, how to write it, publish it
- ▶ The strength of their reputation will help cross thresholds while yours is developing ▶ kick off a strong publication record

Your peers will notice whom you publish with, and future employers & funding agencies will appreciate whom you have worked with / whom you get reference letters from

- ▶ Everyone appreciates good writing skills! (Practice makes perfect!) No unique recipe ▶ room to develop your own style.

#2 A GOOD PAPER IS CREATIVE, USEFUL, AND RIGOROUS

New & worth sharing ➤ *worth reading* ➤ *worth citing*

- ▶ Solid and honest scientific analysis, including discussion of uncertainties.
- ▶ All claims fully backed up by proof/references (especially controversial ones!)
- ▶ Make it **easy** for people to understand what you have done, and **to use it**
 - ▶ Establish clear narrative and key new idea(s) in abstract/intro
 - ▶ Consider how your work is likely to be used. What can you provide to help people apply or test your ideas/methods/solutions? Supplementary code, documentation, instructions, pieces of good/helpful advice?

Note: tempting to 'sit' on an idea and keep working at it until it can solve all the world's problems. My advice: **divide and conquer!**

- ▶ Publish in stages (*provided each piece still above 'quality journal' threshold*)

PEER REVIEW

Peer review isn't perfect (but the best we have)

- ▶ Referees (even editors!) can be bigots, snobs
- ▶ Your work won't always be evaluated on strictly objective scientific grounds
- ▶ Anticipate bias and prejudice. Construct your arguments accordingly
- ▶ Don't take it personally. Plenty of high-quality journals out there

#3 ETHICAL CONSIDERATIONS



I LOOK AT WHETHER JOURNALS OFFER OPEN ACCESS
I LOOK AT WHETHER THEY ARE NOT-FOR-PROFIT, AND
IF NOT HOW BIG THEIR PROFIT MARGINS ARE

- ▶ If you're at a university like Monash, with a well-funded library, you may not realise the incredible cost and profits of some academic journals
- ▶ Think public health care; even though you don't see the bill, you (taxpayers) still pay.
- ▶ Recall that *we* write the papers *and* we do the peer review! (Often we even do much of the typesetting)

Example: Elsevier is the largest publisher of scholarly journals in the world. According to The Economist, Elsevier made \$1.1 billion in profit in 2010 with a profit margin of 36%, which grew to a reported profit margin of 39% in 2013, and 37% in 2014.

In 2012, more than 15,000 academics signed a petition stating that they would snub the Elsevier journals that failed to "radically change how they operate". The protest failed to gain enough support to trouble Elsevier: last year the company received article submissions from 1.8m authors.

NOTE ON IMPACT FACTORS (IF), AND RELATED METRICS

I encourage you to **be leaders, not followers**. If you revolutionise the field, it is not you who should be thanking the journal, but the other way around.

- ▶ The quality of your research should be unassailable, no matter where you publish ▶ Publishable in any 'good' journal in your field

You should nonetheless be aware of the need of administrators (including potential future employers, promotion committees, grant agencies) to focus on a **few very simple metrics** to evaluate academic performance + impact, and some consequences this may have for you

- ▶ IF of *journals* you have published in may be used as a proxy for *your* research quality/impact
- ▶ The IFs of journals mostly measures **short-term** impact (# citations in the first 1 to 5 years)
- ▶ The focus on short term ▶ market for 'sensationalist' (or 'ambulance chasing') papers, with short shelf lives. (May be a good fit for you if you are a fountain of ideas.) E.g., *letter* journals renowned for high short-term IFs (ignoring much worse long-term ones).
- ▶ Thorough lasting research takes longer (lower output rate) and may be published in - well, not crap journals - but just standard high-quality 'good' ones ▶ Competitive if long shelf life