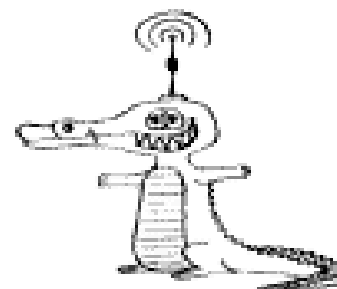


JEREMY



O-Week Edition

24th-26th February 2010

In this issue...

- A message from Physoc president **Jess Bloom**
- Meet the exec for 2010!
- Gratuitous advertising
- A call to arms (and first years)

How to Spot a Bad Physicist

Emma Lindley lists five dead giveaways

1. They abuse the word 'quantum'.

In a world that changes as quickly as this one, it's hard to keep track of new technologies. But alarm bells should definitely be ringing when that fashion magazine is offering discounts on 'super-slimming water enhanced with quantum vibrations'. Personally, I'd be more impressed with water that didn't have any quantum vibrations, because then I'd also have the 2010 Nobel Prize for Physics.

And don't be taken in by the promises of ultra-pure high-definition sound with those 'quantum-tuned speaker cables' that sell for three hundred dollars a metre. Even if they worked, your dad would still complain about how everything sounds more authentic on vinyl.

2. They don't include uncertainties.

"Take a look at this. I'm going to measure the diameter of a proton, using only this handy wooden ruler I picked up at the Back-To-School sales! What's that, ruler? A bit less than a millimetre? It looks like about half to me. Yep, half a millimetre. Gee, I'd better write a paper on this before anyone else finds out."

Admitting you don't know something is painful. But it's part and parcel of physics; when something is as far away as a quasar, or as elusive as the Higgs boson, sometimes the best equipment just won't be enough. Rather than spawning a wealth of inaccurate calculations by pretending you know it all, give future generations a range of numbers to play around with.

3. They won't discuss their ideas.

We've all had that deliciously perfect idea. Whether it was going to be the best novel in the world, a hilarious (and *foolproof*) practical joke or a revolution in nuclear medicine, we wanted to hold that idea close and never let it go. And do you remember what happened then? Yeah. It choked and died from lack of oxygen.

Science is not just about having great ideas – it's about sharing them. Einstein didn't just sit in the Swiss patent office, smugly meditating on his mastery of trains moving at a hundred million kilometres per hour. Of course there are scoundrels out there who'll try and scoop you – so share your ideas with your fellow honours students, rather than the shady guy with the sunnies and the briefcase.

Continued over page...



Facebook not fulfilling your procrastination needs?
Check out the Astronomy Picture of the Day
<http://apod.nasa.gov/apod/>

**LESS
TORQUE
MORE
ACTION**

*Have you got your Physoc shirt yet?
They're only \$12/\$10 with ACCESS!*

JEREMY

The name of Richard Feynman's dog?

The founder of Physoc?

Send your conspiracy theories to us at usydphysoc@gmail.com

...string theory.

You know what else
works great in theory?

COMMUNISM.

Basically, we can't draw.

If you're interested in
being a cartoonist for
Jeremy, see Page 4...

How to Spot a Bad Physicist

Continued from front page

4. You can't argue with them.

For some folk, being contradicted is like getting a tooth pulled. But that's what happens in science – your theory goes up against another theory, both give different predictions, and an experiment hopefully determines which is a better description of the truth. It doesn't matter how long you slaved over that explanation of how all four forces are regulated by little microscopic gnomes dancing about; if an experiment falsifies it every time, you should be able to step back and reconsider your stance. Maybe tweak the parameters and give the gnomes a break.

5. They can't separate physics and philosophy.

Energy. Forces. Vectors. These are all things you expect to hear when you discuss physics, but not so much from the bestselling author of *How To Harness Your True Astral Powers*. Quacks and gurus love to borrow technical terms to make their far-fetched self-improvement plans sound more credible, because 'realigning your energy vector through magnetic forces' sounds a lot more impressive than 'wearing a metal hat to cure fatigue'.

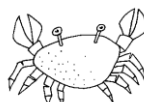
Conversely, when you hear claims that the universe is expanding because of the negative chi pouring from your second-storey window, it might be best just to keep on walking.

From the quantum (soap)box...maybe

A message from Physoc president Jess Bloom

In a world of contradiction and argument, this humble proto-astronomer believes we can all agree on one thing: it has been a whale of a summer, with the LHC trying to sabotage itself from the future, and our party habits trying to sabotage our futures from the present. Either way, time's just an illusion, and it's all the same, so long as you run around the room (screaming) fast enough...right? But before I go into hiding from the mobs of angry Relativity pedants coming after me with metre rulers as punishment for that last sentence, permit me to welcome you all, whether you enter these **ahem** hallowed halls for the first time, with a spring in your step and a skyhooking TER to casually slip into conversation, or whether you, like me, return merely to shuffle down the Physics corridor, pausing your decrepit mumbling only to bid a Happy 2010 to our communal pet, the Chaos Machine.

In a segue of dazzling grace, I would like to meditate for a few moments on the nature of chaos – as pertinent a topic as any at this time of the year. A wise man (well...Tim Bedding) once told me that a chaotic system has at least three degrees of freedom, and a sensitive dependence on initial conditions (at least, I'm praying that is what he told me...*can they retrospectively make one fail first year?*) In this whimsical mood, I shall liken a year at university, whether one's first or fourteenth, to a chaotic system.



As students, we are lucky enough to have many degrees of freedom, ranging from choices of subjects and degrees, to the really important questions: Jacaranda tree or Physics Lawns; Manning or Hermann's? Whatever our decisions, this university is a big, full, interesting place, and I, for one, like it best when I get surprises. There is also that sensitive dependence on initial conditions, so let's start the year well, and may all four forces be with you ☺

Speaking of Local Fluff ¹, that is the name that scientists have given to the 6000K cloud of hydrogen and helium encountered by the Voyager 2 spacecraft over the holidays (see? at least someone was being productive). Voyager's measurements of the Fluff have provided a solution to the question of how such Interstellar Clouds (that's the unfun name) resist gravitational collapse, given their relatively low density and temperature. The answer is an unsuspectedly high degree of magnetisation – look: surprises! – which provides the energy necessary to resist collapse. Interestingly, this cloud, and others like it, will apparently one day compress our little heliosphere, bringing interstellar space, and the exciting Star Trek stuff it contains, ever closer. In a classic monument to procrastination, it appears that sitting here and waiting *will* result in everything coming to us. If only it were all that easy...!

¹ token science plagiarised from: *Opher et al's article: "A strong, highly-tilted interstellar magnetic field near the Solar System."* Nature, 24 December, 2009.



The PRESIDENT

Jessica Bloom's interests include life, the universe, and window shopping at Dior. She enjoys cosmology with her absinthe, and believes everything looks better on fire.

Meet the

TEAM

For more information, check us out at:

<http://www.physics.usyd.edu.au/physoc/>

To find out how you – yes, YOU! – can be part of such an illustrious gathering of individuals, simply head on over to Page 4. (Hint: it's the next one.)



The VICE PRESIDENT

Alexander Campbell is plagued by dreams of being a musician and a writer and the siren song of other disciplines such as Mathematics and History & Philosophy of Science, not to mention his shelf full of books waiting to be read.



The SECRETARY

Thomas Keevers looks forward to guiding physics through these economically uncertain times.

While some may say it is still too early to celebrate, he says: Mission Accomplished.



The TREASURER

Steven Kennedy is too lazy to construct a witting and dazzling summary of his panache and charm. On the plus side though, this same apathy also prevents him from embezzling the society funds.



The WEBMASTER

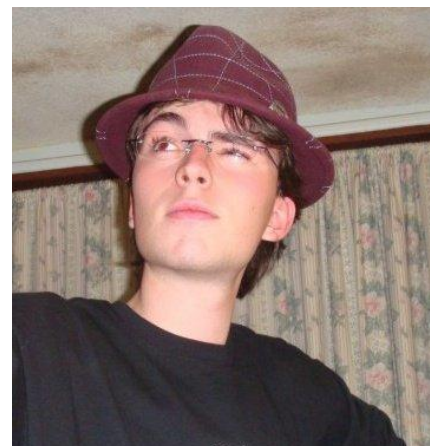
Anthony Cheetham is a British theoretical physicist, who has achieved great success with his runaway bestseller, 'A Brief History of Time'. No, wait, that's Stephen Hawking.



The EDITOR

Emma Lindley always wanted to be a car, but when that dream was thwarted she took comfort in physics.

Motto: "Punch 'em in the face."



Also The EDITOR

Benjamin Pope is involved in Physoc, SciSoc, Sutekh and SUMS. He splits his time between the Physics building and Manning Bar, and thinks Thai La-ong 1 is better than Thai La-ong 2.

JEREMY

And here's where you come in...



Have lunch with us!

There is a **FREE BBQ** for all Physoc members on **Thursday the 4th of March**. Come to the top of the Physics building (take the stairs from Lecture Theatre 2) from 12-2pm for delicious food, witty conversation and a great view of the campus!

Write to us!

We care about our readers. After all, without you, it wouldn't make much sense to have a newsletter, and the Editors would actually have to work on their many assignments.

Send your articles, rants, letters and amusing lecturer quotes to usydphysoc@gmail.com



Work with us!



We're looking for a first year student to be our First Year Rep. This means talking to your fellow students to find out what we can do for them – how we can get them excited about physics, what kind of events we should have. It will look great on your résumé! Talk to one of our friendly exec members or send us an email.

Draw for us!

Sure, we could steal webcomics off the internet and pretend we drew them. But not only would it be rather dishonest, it would also be incredibly obvious to our readers, who have probably seen them already. Sadly, none of the exec members can draw. If you've got a talent for comic strips – or even if you don't – please let us know! The alternative is too terrible to consider...

