

Physics World Archive

Theory of nothing?

Michael Duff

From

Physics World

March 2011

© IOP Publishing Ltd 2015

ISSN: 0953-8585

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**Institute of Physics Publishing
Bristol and Philadelphia**

Downloaded on Wed May 06 17:27:58 GMT 2015 [155.198.212.85]

Feedback

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Italian university crisis

I read with interest your news article about reforms to the Italian university system (February p13). The fact is that Italian universities (most of which are public institutions) are facing a very severe financial crisis. Forced to reduce the country's overall spending, the finance minister Giulio Tremonti chose to do this by cutting each ministry's budget by the same overall percentage. But since most of the education ministry's budget goes on the salaries of teachers and other personnel, which are already low and cannot be reduced any more, what will be hit is research, scholarships, funds for PhDs and all the supplies and equipment that universities need.

Mariastella Gelmini, the education minister, planned to combat this problem by reducing waste, cutting non-essential courses and introducing a meritocracy for hiring. But although these initial aims were correct, she has come under political pressure that has forced her to introduce some very poor rules – including one that says that some 10% of university scholarships must be awarded to students living in the area where the scholarship is assigned.

This rule was compulsorily introduced by the pressure of one political party, the *Lega Nord* (Northern League), and it is clearly wrong, since it favours some sort of local right over merit. Indeed, the Italian president, Giorgio Napolitano, wrote as much after signing the law, when he also advised the Italian parliament to correct these mistakes. As a consequence, all of my university colleagues are really worried about the reforms.

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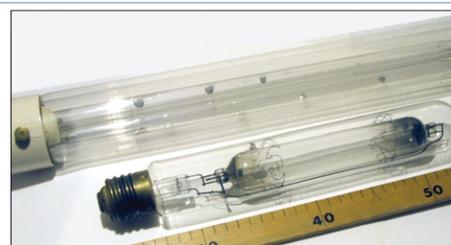
Wimpy wind turbines

Your news article on Spain's plan to build the world's largest wind turbine (January p9) stated that "a wind farm consisting of 65 turbines [at 15 MW each] would generate the same amount of power

as a typical nuclear plant". This is not correct. Granted, $65 \times 15 = 975$ MW, which is indeed the installed power of a typical nuclear plant. But as anyone can observe and testify, the wind is not permanently blowing, even on the seashore. Moreover, for a wind turbine to operate, the wind speed must be more than a certain value to start the blades moving, but also less than a value that would cause damage. Consequently, the average wind turbine is only online for 25–35% of the year.

A nuclear plant, in contrast, is onstream 75–85% of the time on average. The wind farm discussed in the article will therefore produce at best the equivalent of an installed power unit of 292.5 MW (0.35×975 MW), which is only 40% of a typical nuclear plant (0.75×975 MW).

Robert Clar
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the 1940s: the larger one is a 140 W low-pressure sodium lamp complete with its Dewar outer jacket; while the smaller is a 400 W medium-pressure mercury lamp. More of my collection (including one X-ray tube) can be seen at www.tuopeek.com. I wonder how many other interesting private physics collections are out there.

Mark Klimek
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Calling all collectors

I was interested to read about Grzegorz Jezierski's collection of X-ray tubes (January p3), as I also hold a small collection of interesting glassware. The photo (right) shows two early industrial-application discharge lamps from around

Theory of nothing?

Regular readers of *Physics World* will recall the July 2008 front cover and article on Garrett Lisi's "theory of everything", in which he lays out in a paper on the *arXiv* preprint server ([arXiv:0711.0770](http://arXiv.org/abs/0711.0770)). This paper claims in its opening sentence to unify "all fields of the standard model and gravity", yet it has still not been published

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in a peer-reviewed journal.

Never mentioned by *Physics World* is the paper by Jacques Distler and Skip Garibaldi, which appeared last year in a highly respected journal (*Commun. Math. Phys.* **298** 419–436) as well as on *arXiv* (arXiv:0905.2658), and which proves that Lisi's paper contains mathematical errors that render his claim just plain wrong.

So it was interesting to read yet another (fifth?) *Physics World* article on Lisi – this

one on your blog (19 January) – devoted to his (presumably not-peer-reviewed) T-shirt that features a diagram linked to his work. In your blog entry, you wrote that “Lisi's theory has received a mixed response, with some leading physicists, including the Perimeter Institute's Lee Smolin, praising it, while others such as Jacques Distler of the University of Texas find fault with it.”

This statement creates the impression that when it comes to theoretical physics, *Physics World*, and by extension the

Institute of Physics, thinks that opinions somehow trump mathematical theorems – an impression reinforced by the counting of Web links in the article: Lisi 5, Distler–Garibaldi 0.

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Correction

Silicon was described (February p4) as being “piezoelectric”. It is in fact piezoresistive.

Comments from physicsworld.com

Given readers' polarized views on science and religion, we were not surprised to see such a strong reaction to our story reporting that a settlement had been reached in a case brought against the University of Kentucky by astrophysicist Martin Gaskell (online 19 January and February p7). Gaskell had claimed that the university had illegally denied him his application in 2007 to become founding director of its then-planned MacAdam Student Observatory on the basis of his evangelical Christian faith. The settlement required the university to pay \$125 000 to Gaskell and his lawyers, who claimed that Gaskell had lost income and been caused “emotional distress”. The university, however, admitted no wrongdoing, although e-mails from some Kentucky astronomers and biologists had expressed concerns that that his statements indicated a belief in creationism rather than evolution.

Michael Cavagnero [Kentucky's head of physics] says that he came to the conclusion “that, while a talented astronomer, Dr Gaskell is a lousy biologist”. Wait a minute. Gaskell, an astrophysicist of some note, applied to be director of the University of Kentucky's observatory – a position hardly related to the biological sciences. Was it a hiring criterion that the observatory director be an excellent biologist – or even a biologist at all? Is the current observatory director a biologist? Conversely, does Kentucky's biology department choose faculty and staff based on their knowledge of astronomy? I suspect many biologists would be lousy astrophysicists.

StBI

This article doesn't really give enough information about the circumstance to start passing judgment on either side. They may have had a legitimately better candidate, or they may have discriminated. We don't really know based on this article alone.

TR14L

If you care to look, you can easily find out what happened. In ruling on the parties' motions for summary judgment in October 2010, US District Judge Karl Forester wrote “To a large extent, ‘what’ happened is largely undisputed. Rather, it is [the university's] motivation for rejecting Gaskell...that remains hotly contested.” Forester noted that Gaskell was a leading candidate for observatory director – in fact, one of two finalists – and that the

chair of the search committee described Gaskell as “superbly qualified”, “breathtakingly above the other applicants” and someone “who has already done everything we would want the observatory director to do”. The court further noted, however, numerous statements in e-mails exchanged among those involved in the search process as well as statements in depositions “which, if true, are direct evidence of religious discrimination”.

Judge Forester specifically noted the following.

- The head of the search committee wrote in an e-mail to the chair of the physics and astronomy department that “no objective observer could possibly believe that we excluded Martin [Gaskell] on any basis other than religious”.
- The department chair admitted “that the debate generated by Gaskell's website and his religious beliefs was an ‘element’ in the decision not to hire Gaskell”.
- One member of the search committee admitted that Gaskell's “views of religious things” were “a factor” in his decision not to support his candidacy.
- Another member of the committee, having discovered Gaskell's website, warned fellow committee members that Gaskell was “potentially evangelical”.
- The search head, anticipating a decision against Gaskell by his fellow committee members, wrote that “other reasons will be given for the choice...but the real reason we will not offer him the job is because of his religious beliefs in matters that are unrelated to astronomy or to any of the other duties specified for this position”.

dehayes3, US

The underlying question is not the kind of beliefs (religious or otherwise), but any beliefs that impact the direction of the scientific process. I don't know about how this impacts on [Gaskell's] intellect – he certainly seems intellectually very capable, but I do know that whenever constraint is introduced, the scientific method gets corrupted.

itsmanaged, Australia

In the US you cannot refuse to hire someone because of their race, gender or religious beliefs. That means if Gaskell is a qualified candidate, he cannot be denied because of race, gender or religious beliefs. It seems obvious from Judge Forester's comments on the evidence introduced in his court that this is precisely what happened.

dehayes3, US

It should be perfectly reasonable for his evangelical beliefs to play a role in hiring. Clearly having false, irrational beliefs gives some indication of a person's intellect. If they found out that he believed in fairies or dragons, wouldn't that be relevant information? Beliefs that are obviously false, irrational or dogmatic remain false, poorly reasoned beliefs, whether based upon religious tenets or otherwise.

w v o quine

Gaskell's religious beliefs shouldn't influence the University of Kentucky's decision to hire or not hire him, as long as the beliefs are kept private. Clearly, Gaskell made his beliefs widely known in the public arena. Therefore his views on science and religion can be legitimately taken into account in the hiring process. There are many considerations that must be made when hiring for a position. Undeniably, one of these is how the person will “fit in”, and one's publicly expressed, strong religious views should weigh in to a hiring decision just as much as personal hygiene or peculiar mannerisms ought to. The university should not have been obligated to offer Dr Gaskell a single penny for not hiring him.

raAustin

Evolution is a scientific theory that explains the natural processes for the evolution of life – processes that had (and have) no need for a deity. If someone told you they believe in “theistic gravity,” where invisible fairies guide planets around, you'd rightly consider their “faith” an unscientific absurdity. So it is with “theistic evolution”. Evolution has no more need of deities than gravity has of fairies.

Dwayne Anderson, US

A theistic evolutionist is someone who believes in God and in evolution. You might want to refer to the writings of John Polkinghorne. He was an accomplished quantum physicist and is now an ordained minister who has written prolifically about the relationship between science and religion.

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Read these comments in full and add your own at physicsworld.com