

# Letters

Letters to the editor can be sent to *Physics World*, Dirac House, Temple Back, Bristol BS1 6BE, UK, or to [pwld@iop.org](mailto:pwld@iop.org). Please include your address and a telephone number. Letters should be no more than 500 words and may be edited

## Strings and philosophy

The article by Nancy Cartwright and Roman Frigg ("String theory under scrutiny" September pp14–15) makes the familiar charge of reductionism in theoretical physics. Dare one respond by remarking that physicists do not set out to reduce, but instead they notice things? In classical physics, for instance, it would be a poor physicist who did not notice that the equations describing gravity and electromagnetism are of a similar form. In modern physics, Felix Kaluza did not set out to unify the modern theory of gravity with electromagnetism; the idea suggested itself when the equations of general relativity were written in higher dimensions. Today, if physicists are striving to establish a unified framework for the four known fundamental forces, it is not to blindly follow a particular philosophy but because deep connections between some of these interactions have already been uncovered in theory and experiment.

On a separate point, the authors' conclusion that "string theory is not progressive" seems rather arbitrary, since it is based on a number of philosophical criteria laid down by Imre Lakatos and others yet no concrete justification for these criteria is offered. The statement that "a research programme that progresses only in some dimensions while being stagnant in others is not progressive" would appear to consign many research programmes in modern physics to the dustbin!

**Cormac O'Raifeartaigh**

Waterford Institute of Technology, Ireland  
[coraifeartaigh@wit.ie](mailto:coraifeartaigh@wit.ie)



had anything to do with science, then we would actually be acutely aware of it – and not, as Goldhaber claims, unaware that we are acting on faith.

Perhaps what the author means is that, as individuals, in order to lead a meaningful life in science, we need to believe in science itself. The religious analogy would be that in order to become a vicar/imam/rabbi, one needs to believe in Christ/Allah/God. I can see that life would be a lot easier if one accepted the faith, but is it necessary? There are plenty of examples of religious leaders struggling with their faiths. Indeed, regarding "scientific faith", that urge to question belief is actively encouraged – and to have doubts is in fact one of the driving forces of science!

**Elizabeth Moore**

Philips Medical Systems, UK  
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**Alfred Scharff Goldhaber replies:**

Isn't the fact that Moore says "science is true" at least a tacit admission of scientific faith? Past successes of science makes it implausible – but still logically possible – that science will collapse in future. To do science, we assume it will continue to work, which is my definition of scientific faith.

Matthew Chalmers tells us that "modern string theory is not even a theory of strings but one of higher-dimensional objects called branes" (September pp35–47). What a pity, then, that his 13-page article gave a complete history of strings but completely ignored the history of branes, thus creating the impression that they

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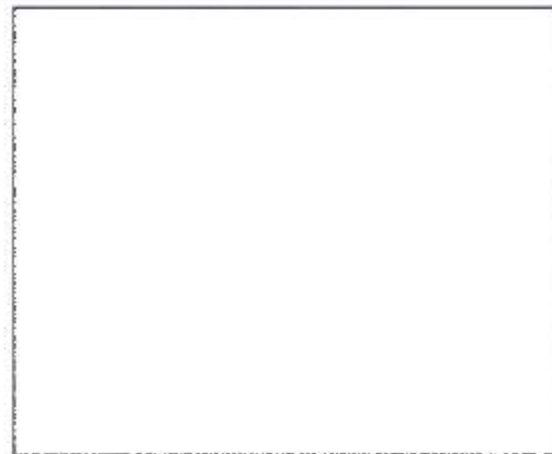
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