



The gods of cosmology

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Questions about why we and the universe exist are worth asking even if there are no answers

For the third year running, a physicist has won the Templeton prize. This is the one that is not just bigger than the Nobel – it is worth £795,000 – but also more imprecise: it is awarded for “progress toward research or discoveries about spiritual realities”.

It went on Wednesday to the cosmological polymath John Barrow at Cambridge; last year it went to the American Charles Townes, who discovered the maser; the year before it went to the South African George Ellis, whose big research theme was the large-scale structure of space and time. In the past 11 years it has also gone to John Polkinghorne, who gave up his chair in physics at Cambridge to become a clergyman; Freeman Dyson, the British-born physicist who worked on the Los Alamos project; and Paul Davies, the Australian-based thinker, writer and cosmologist. Not bad for an overtly religious prize first awarded in 1972 to Mother Teresa.

Barrow made a name beyond astrophysics 20 years ago by co-authoring an argument known as the anthropic principle: that the universe looks as though it has been tailored for the emergence of intelligent life. This frames two huge riddles: is there something special about the universe that means intelligent beings will inevitably emerge to understand it? Or does it just appear like that because we look back down the long tunnel of time, so of course it would seem to point exactly towards us?

Einstein put one version of the same question when he observed that the most incomprehensible thing about the universe was that it was comprehensible. The Nobel prize winner Steven Weinberg put another version when he

said, in a 1977 book called *The First Three Minutes*, that the more the universe seems comprehensible, the more it also seems pointless. Most science involves taking a large subject and reducing it to ever smaller, more precise questions. Physics seems to start with precise questions about atomic particles or strong nuclear forces and end up with very big, imprecise ones such as: why are we here? No wonder even physicists who don't believe in God tend to invoke Him. Einstein famously claimed that God did not play dice. Stephen Hawking ended his most famous book by claiming that humans might one day read the mind of God. Leon Lederman called his book on the Higgs boson *The God Particle*. Others leave the divine question open; yet others overtly believe in God. This is not quite what anyone expects from science, which got where it has by firmly excluding the supernatural and following the evidence of the natural.

But then cosmic physics is the odd science. It can explain, with huge confidence, the entire history of the universe from about the first tenth of a second of time onwards. A few years ago cosmologists were inclined to claim that at any moment they might have the whole answer: they would be able to explain how the universe borrowed energy from nowhere, puffed itself up from nothing, burst into starlight, exploded with supernovas and produced a sludge of elements that finally delivered a creature intelligent enough to read *The Da Vinci Code*.

You hear less of that now. Physicists cannot be sure whether this universe right here is the only one; or one of zillions of universes, one just lucky enough to produce Aristotle and Oprah Winfrey. Perhaps the answers lie within that tiny fraction of time right at the beginning of everything, and perhaps they do not. As both atheists and believers are fond of saying, God knows. The questions are worth asking, even if there are no answers. As Steven Weinberg said in *The First Three Minutes*: “The effort to understand the universe is one of the very few things that lifts human life a little above the level of farce, and gives it some of the grace of tragedy.”