How do we support today's Einsteins?

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Is today's academic and corporate culture stifling science's risk-takers and stopping disruptive, revolutionary science from coming to the fore? In April's Physics World the science writer Mark Buchanan looks at those who have shifted scientific paradigms and asks what we can do to make sure that those who have the potential to change our outlook on the world also have the opportunity to do so.

When Max Planck accidentally discovered quantum theory, he kick-started the most significant scientific revolution of the 20th century; his colleague, Wilhelm Röntgen's experiments with cathode rays led inadvertently to the discovery of X-rays, which ultimately revolutionised modern medical practice; and US physicists at Bell Labs, Arno Penzias and Robert Wilson, detected cosmic wave background radiation -- the echo of the Big Bang -- when trying to get rid of the annoying noise being picked up by their microwave receiver.

Would today's physicists, plagued by the publish-or-perish ethic, have the same freedom to explore their findings?

Buchanan offers a selection of different perspectives in the article. He looks, for example, at suggestions that scientists themselves could take a financial risk in speculative research depending on whether they do or do not think it will pay off, as well as proposals - through, say, 10-year fellowships - that allow scientists to pursue really "hard", long-standing problems without the pressure for rapid results.

A second article in this month's edition of Physics World explores the

emergence of “econophysics”, which originally stemmed from research at the Santa Fe Institute in New Mexico - one of few centres dedicated to innovative, high-risk and often inter-disciplinary research. In the article, Jean-Philippe Bouchaud, head of research at Capital Fund Management, explains how “Econophysics” seeks to construct a much more complete picture of the economy through power-laws and “toy” models inspired by physics. Going beyond our flawed classical understanding of economics, which assumes that the markets act rationally, it is an example of truly innovative, inter-disciplinary physics that could change the way we view our world.

As Buchanan writes, “The price to pay for not moving to re-establish [scientific] independence will lie in a failure to realise the huge and unpredictable discoveries that move science forward most in the long term - discoveries made possible only when individuals leap out of what is comfortable and accepted, and wander out into spaces unknown.”

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