Dr David Stainforth

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What is it like being a scientist?

Always learning. The best thing is learning new things and making new connections.

Not everyday is different; but most are. I spend a lot of time talking to people in different disciplines and trying to understand how their understanding and perspective should inform my work.

What inspired you to become a scientist?

I just wanted to understand how the world works. I mean really how it works; at its most fundamental level.

For me that meant physics and in particular particle physics and astrophysics. Over time my basic interest has stayed the same but I now understand much more about the importance and beauty of complexity and chaos. You don't have to go to the smallest and largest things to get fundamental questions of how the world works.

What is the best thing about being a scientist/ your job?

The most exciting and scariest aspect is realising that no one anywhere knows the answer to the question you're tackling. The greatest thrill is realising that you are one of the first people to know something or understand something in a particular way.

If you could go back in time which scientist would you like to meet and what would you ask them?

I'm very lucky in that I do sometimes have the opportunity to meet some of the cleverest people in the world today. It's a great privilege. It's also daunting and I rarely know what to ask them. It takes a few minutes of small talk before I find some area of common interest at which point I start overflowing with questions. Often just before they have to go!

If I did go back in time, I would like to meet/ask:

Galileo Galilei: With hindsight, even knowing that you were right, do you regret standing your ground against the authorities, the church? Was the personal cost worth it?

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- Confidence from uncertainty: Dr David Stainforth
- Discovering particles: Dr Cristina Lazzeroni
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- Invisibility science: Professor Ulf Leonhardt
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- Noisy world: Professor Stuart Rosen
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- Pesticide resistance: Professor Lin Field
- Quantum computing: Professor Jim Al-Khalili
- Rotten fish & fossils: Dr Sarah Gabbott
- Solar nanotech: Professor Wendy Flavell
- Traffic control: Professor R Eddie Wilson
- Trauma surgery: Dr Daniel Frith
- Wind power: Dr Les Duckers

Pierre de Fermat: What was the truly marvellous proof he found to what is now known as Fermat's last theorem?

What do you do in your free time?

I like music and walking in beautiful countryside.

What is the first science you remember doing?

I remember climbing the leaning tower of Pisa as a teenager and thinking about dropping things off.

What advice would you give a school child who is interested in science?

The great thing about science is how it provides unifying explanations. The same forces which govern how the moon moves control how a tennis ball moves. Science enables us to see how the world works. There is a beauty in this understanding.

At the same time, the real world is far more complicated than just the simple motion of the moon or a tennis ball. There is beauty in this complexity too. Today's great scientific challenges are found in this complexity. How can we find unifying principles in such complex real world systems? And how can we do this across the wide range of subjects relevant in climate change: physics and economics, philosophy and computing, ecology and mathematics? Only by asking these questions can we ensure scientific information is effectively used to help society respond to climate change and build the kind of future we want for ourselves, our children and the population of the planet.

What discovery or invention could you really not live without?

Language. Language is unbelievably powerful. When used carelessly we can misguide ourselves as well as others.

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