

TAPE - *Spider-Man Far From Home*

I'm sorry - your world?

Mr Beck is from Earth ... just not yours.

There are multiple realities, Peter.

This is Earth Dimension 616. I'm from Earth 833.

I'm sorry, you're saying there's a Multiverse?

Because I thought that was just theoretical and I mean that

completely changes how we understand the initial singularity!

We're talking about an eternal inflation system and how does that

even work with all the quantum ... it's insane!

Sorry! It's really cool.

John Dickson

That's a scene from the 2019 Marvel film, 'Spider-Man Far From Home'. Spider-Man is meeting Quentin Beck (also known as Mysterio) for the first time.

When the trailer for 'Spider-Man Far From Home' was first released, Marvel fans went crazy at the mention of ... "the multiverse."

I won't give any spoilers - partly because I don't know what they are - but Researcher AI tells me there are major spoilers in this movie about the multiverse.

Our culture is a little obsessed. Whether you're a Marvel fan or not, it's hard not to be interested in the idea that there might be other universes beyond our observable one.

Hollywood is certainly into it. The multiverse offers infinite storytelling possibilities.

It also allows film studios to keep profitable franchises running on an endless loop.

But it's not limited to superhero movies.

The Academy Award for Best Picture in 2023 was won by the indie sci-fi flick *Everything Everywhere All At Once*. In it, the main character discovers she is connected to multiple versions of herself in parallel universes.

The multiverse is part of the cultural mainstream now.

But in science, it's still debated.

One theoretical physicist at the Frankfurt Institute for Advanced Studies called the multiverse "the most controversial idea in physics".

Writing in the journal Nature back in 2014, physicists George Ellis and Joe Silk described the debate about the multiverse as a “battle for the heart and soul of physics.”

Some scientists have gone so far as to ask whether the multiverse can even be called ‘science’. And if it’s not science, what are we even talking about!? Why are we doing an episode on it?

Well, the multiverse is a kind of bridge between speculative metaphysics (maybe science fiction) and something some serious scientists are pondering.

And it certainly raises philosophical and theological questions.

If there’s more than one universe, then the existence of our universe all of a sudden isn’t so special, right? It’s not so improbable. It’s just the lucky one. Or maybe one of the lucky ones.

If there are billions of universes, are there multiple versions of me out there? Is there a universe in which I lived in 8th century Achen and I’m a friend of Alcuin of York? Imagine!!

More importantly, are there universes in which gods exist? Or does the whole thing mean that the One Creator God does not exist?

Things are about to get very weird.

I’m John Dickson, and this is Undeceptions

Deb Haarsma

Well, there are actually multiple ideas for the multiverse. There isn't just one multiverse theory and. Uh, the multiverse has become popular in the big blockbuster movies, the big comic book movies and the Academy Award-winning movies. And what you see there has some, uh, faint resemblance to some of the multiverse theories in physics, but it is a lot less, uh, it's not so much about fighting interdimensional monsters, it's [00:02:00] much more about mathematics and the multiverse.

John Dickson

I'm chatting to Deb Haarsma, acclaimed astrophysicist and President of Christian think tank BioLogos, an organisation seeking to communicate the harmony between the wonders of modern science and classical Christianity.

She's one of the world's leading communicators on all things space and is, in fact, a returning guest (check out episode 53 'Outer Space' for her first mind-boggling instalment).

She's lectured and debated some of the brightest minds all over the world, and multiverses are one of her many loves.

John Dickson (tape)

What is the multiverse and when was it first proposed in our modern scientific sense?

Deb Haarsma

Um, I'm most, so there's three or four of 'em that I hear of most often. There's the inflationary multiverse, the uh, string theory multiverse, and the many world's quantum mechanics, uh, multiverse. And there are other ones as well. But some of these cosmological ideas go back millennia, uh, where people were thinking, ah, there are parallel universes to our own other planes of existence that are similar and yet different from us.

So there's actually quite a bit of, um, artistic expression around the multiverse and, uh, philosophical and theological thinking.

John Dickson

This is a fascinating point; like so many things in the science world, the concept of multiple universes and parallel realms of existence is one of ancient origin.

Take Hinduism for example; in Hindu cosmology, time isn't linear, but rather cyclical, divided into four epochs known as "Yuga", each lasting between half a million to a million years.

After the fourth epoch - the Kali Yuga - the universe will collapse, only for a new one to be born again.

The sacred texts of the Hindu Rigveda, written between the 15th to 12th century BC, also talk about the Brahmanda, an oscillating universe that expands from a single point to collapse once again.

In another text, the Bhagavata Purana, we find this passage;

Reading

There are innumerable universes besides this one, and although they are unlimitedly large, they move about like atoms in You. Therefore You are called limitless.

Bhagavata Purana 6.16.37

John Dickson

On the other side of Eurasia, Ancient Greek Philosophers were also riffing on the concept of a multiverse, or at least of an appearing and disappearing universe on an eternal cycle.

Here's Chrysippus (born 280 BC), who systematized Stoic philosophy, describing the universal order:

Reading

When the planets return, at certain fixed periods of time, to the same relative positions, in length and breadth, which they had at the beginning, when the cosmos was first constituted, this produces the conflagration and destruction of everything that exists. Then again the cosmos is restored anew in a precisely

*similar arrangement as before... And this restoration of the universe takes place, not once, but over and over again—indeed to all eternity without end. **Chrysippus, Fragment 625***

John Dickson

Other philosophers gave this an ethical spin, reasoning that what happens to you in this cycle of the universe is the result of things you did in the previous cycle. Here's Plotinus, one of the most popular philosophers of the third-century Roman empire:

Reading

*The rational principle does not look only at the present on each occasion but at the cycles of time before, and also at the future, so as to determine men's worth from these, and to change their positions, making slaves out of those who were masters before, if they were bad masters; and, if men have used wealth badly, making them poor; and causing those who have killed unjustly to be killed in their turn. There is certainly no accident in a man's becoming a slave, nor is he taken prisoner in war by chance, nor is outrage done on his body without due cause, but he was once the doer of that which he now suffers ... We must conclude that the universal order is forever something of this kind. **Plotinus, On Providence 1.13***

John Dickson (tape)

Right. Um, you mentioned, uh, was it three different models of the multiverse. Can, can you give me a couple of sentences about each so that we can sort of lay them out for our audience?

Deb Haarsma

Sure. So the string theory, the theory of the multiverse, Has its origins in this desire to bring together an understanding of quantum mechanics and gravity and to resolve some of the issues we have with elementary particles. Um, these, there's a vast number and variety of different elementary particles that physicists have, uh, postulated and now detected and.

What began as a quest to understand these elementary particles and quantum gravity ended up with a theory that lays out the possibilities of many possible values for the fundamental constants of nature and mechanisms for how these values, what these values might be for determining them instead of just taking them as givens of the beginning of the universe.

So it didn't arise as, uh, from some other motivation. It arose from a desire to understand elementary particles.

John Dickson

String theory is weird. In fact, the more you understand it, the weirder it is.

It's an attempt to account for the problems physicists have working out how general relativity (the laws about the big things, like stars) relates to quantum mechanics (the laws about tiny particles).

It seems like the big things don't behave according to the same principles as the tiny things.

For one thing, it seems like particles on one side of the solar system can influence particles on the other. Now, that's not meant to happen, because nothing is meant to move faster than the speed of light.

But ... what if fundamental reality isn't pointy things like particles at a distance ... but giant connected stringy things vibrating across space?

That would explain some stuff.

The problem is: the theory can't currently be demonstrated - it's not even clear how one could demonstrate it.

Deb Haarsma

Another theory of the multiverse is many world's quantum mechanics, so this is focused on how quantum mechanics works. Quantum mechanics is our theory for understanding elementary particles and the strange ways that they behave, and really everything at the microscopic scale where things are not entirely predictable.

We, a given situation might go in one direction or another and we cannot determine ahead of time, which it is. It just. The electron might flip, uh, its spin up or spin down. Well, in the many world interpretations, each time one of those quantum events happens, an entire new universe is formed. So you have two different universes, one in which the electron flipped up, and one in which the electron flipped down.

And this multiplies universes at a stupendous rate.

John Dickson

The 20th-century Austrian Nobel Prize-winning physicist Erwin Schrodinger offered the thought experiment of a cat.

Imagine a cat in a box with a device that has a 50% chance of killing kitty in the next hour.

At the end of the hour, until you open the box and observe whether the cat is dead or alive, it is both dead *and* alive at the same time.

It's only when we take a measurement (i.e. we open the box), that one definite measurement exists - the cat is either dead or alive.

But that doesn't mean the alternative doesn't also exist.

In the many worlds theory of physicist Hugh Everett back in 1957, all those other possibilities exist too. Different versions of the universe splinter off every time there is an event with more than one outcome.

Max Tegmark, Professor of Physics at the Massachusetts Institute of Technology (MIT), is also a believer (in the many worlds theory). In a *Washington Post* article earlier this year, he's quoted as saying:

"I actually try to think, when I get a parking ticket, 'Hey, there's another version of a parallel universe where I didn't get ticketed,' so I can feel a bit better. And there's another version where my car got towed."

So, there might be a universe where I didn't agree to do this episode!

Deb Haarsma

Another theory of the multiverse is the inflationary theory of the early universe. So this is a model from cosmology, which is my own area. I've studied, um, observed galaxies and galaxy evolution and the expansion of the universe as a whole. And when we look at the radiation from the early universe, it has.

Uh, an incredible uniformity over the whole sky. It's this similar temperature, this heat radiation left from the early universe. It's almost the same in every direction, but then there are these slight variations and those variations over time develop into the structures we see today, like stars and galaxies.

Well, How did it come to have those slight variations? And the inflationary model was posited to explain where those come from. And they come from variations at a very tiny level, the quantum

mechanical level that then got inflated and expanded to this incredibly, uh, regions that's larger than our observable universe.

It also, the inflationary theory predicts that there will be many universes each having, uh, somewhat different values of the fundamental constants.

So I'll say that each of these multiverse theories sounds bizarre. Uh, it is Really hard to comprehend the inflation models expanding at this incredible rate in an incredibly tiny moment in time.

And it's not something like physicists think, oh, let's just try this. No, it was to explain real problems that we could not explain any other way. And the inflation model has made detailed mathematical predictions for this universe that have been confirmed at an impressive level of precision, which gives a lot of faith to that model.

Video - Brian Cox

John Dickson

That's famed physicist (and keyboard player), Professor Brian Cox on the Science Time YouTube channel, talking about the Big Bang and cosmic inflation.

According to the father of the cosmic inflation theory, physicist Alan Guth, inflation sets up a kind of prequel to the universe. It's one step closer to answering the question: "What was it that banged" in the Big Bang? And it asks another: how many bangs

could there have been - and are they still banging? Well, here's Professor Guth on the MIT podcast in 2020.

TAPE - Alan Guth

Inflation does very much point toward the possibility of our universe not being unique but rather our universe being part of a much larger complex, which has come to be called the multiverse. The real difference is how many big bangs there are. That's how we count. So a multiverse means many big bangs and our big bang was just one of many.

If we believe that there can be a scientific description of how the universe came into existence, and that's what the ultimate goal of theoretical cosmology is – we're not there yet by any means but that is the goal. If we could ever imagine achieving that goal then I think it becomes a relevant fact that everything that we know of that can happen in science always happens more than once.

There is absolutely nothing we know of that we think we understand in science which happens only once. In a religious context, once is a common concept. But certainly, scientifically that's not the norm.

The norm is that anything that can happen can happen again and again. And I think it's natural to expect that that's the likely situation with regard to the production of universes.

John Dickson

This brings up a whole bunch of questions for me - and I'm sure for you.

I'm particularly interested to know what all this has to say about the fine-tuning of the universe, a topic we've discussed before. This universe looks freakishly well-tuned for life. That's either a set-up... or the most mind-boggling fluke.

Fortunately, I have a mate who's a cosmologist and the author of *A Fortunate Universe*, all about this idea.

Luke Barnes theoretical astrophysicist, cosmologist and postdoctoral researcher at Western Sydney University. He got his PhD in astronomy from the University of Cambridge.

So, I phoned a friend!

John Dickson (tape)

So, um, to what degree is the fascination with the multiverse, or the scientific interest in the multiverse, motivated by being a little bit creeped out at how fine-tuned our one is?

Luke Barnes

Yeah, well My favourite quote on this I think its Alastair McGrath But I really wish I could find the original source is he gave a talk about fine-tuning Of the universe for life, and then someone came

up to him and said I'm not religious But something weird is going on here, and that's my favourite summary of fine tuning I, I think it's sort of undeniable that there is a, it looks like a problem to be solved.

There's something about our universe that seems on certain grounds to be unlikely, and we go exploring for the sorts of Hypotheses, the sorts of ideas in the background that might make it a bit less unlikely, and the multiverse is one of those, trying to address this problem of fine-tuning. This isn't, this is often put forward as a bit of a sort of conspiracy, I suppose, that, um, you know, this shows that the multiverse is just sort of made up.

Actually, as a scientist, I don't really care where your ideas come from, I just want to be able to test them. There's been various ideas in the history of science that started... The idea is that there's a certain molecule where the carbon atoms go in a circle, called a benzene ring, that came to someone in a dream.

He dreamed about a circle eating its own tail, and then was like, Oh, oh, that's the structure of benzene. I don't care if you dreamed it, as long as we can go into the lab and test it. So, I don't really care if the multiverse is trying to solve fine-tuning. All I care is that, you know, can we find out whether it's true or not?

John Dickson (tape)

But would the existence of a multiverse completely squash the weirdness of our universe?

Luke Barnes

I don't think so, for the following reason. Um, let's take that, so take the relationship between our universe and a multiverse. Like one little piece of a much bigger story. And let's just drop everything back a level and let's think of our planet in the context of our universe. So there's one little planet here, we know lots about it, but then we discover there's lots of planets out there in the universe.

What does that do? And I think you could say, well, we thought our planet was rather nice, but then it turns out there's lots of planets out there. And on one level, sure. But if you're really asking the question of, and you really want to know the answer to the question, Look, is there anything about our universe that seems well put together?

Which seems thought out? Which seems like a mind would be a good explanation for why it turned out this way? That realization there are other planets out there just takes your question and moves it. You know, rather than focusing just on our planet, which looks well put together, okay, lots of planets. What do you have to do to a universe to make sure there's lots of planets in it?

And that leads you immediately to the fine tuning problem we're talking about. A typical universe won't have lots of planets in it. It won't be able to do anything interesting like that. You, you know, this is the whole fine tuning problem. Change this parameter, change that parameter, you blow the universe up.

Nothing sticks to anything, so. So a universe with lots of planets is a well put together kind of place. So, alright, our universe now has these nice properties, it looks great, there's a lot of stuff it does, which the typical universe doesn't seem to be able to do. Now, now I'm told there's lots of universes out there.

And the question now is, will we just have to make that same move? Is there anything that needs, special that needs to happen to a multiverse to make sure that it's a life permitting multiverse, to make sure that it actually makes? interesting universes in it at all. And here's the problem. We have no idea what the answer to that question is.

Because we don't have a standard multiverse model, a standard multiverse idea in science. It's half an idea. It's a test case. It's a pilot. It's a, you know, I can't dig my teeth into it as an astrophysicist and say, alright. What are the fundamental numbers that go into it? What happens if I change those numbers?

What's the physics? How can I test it? Where's the... Like, all of that is just missing. And so, on one level, it would change the question if we had it, but the answer to that question, like with the planets, might still turn out to be yes. You might have to fine tune a multiverse to get a life permeating universe.

But at the moment, we just don't know. So the best answer we have to the question... It remains the fine tuning of our universe, the best parameters, the fundamental parameters of the best theory we have of the universe that we have actually tested. Um, still says that this is a pretty amazing place.

John Dickson

In his 2012 book *The Grand Design*, famed physicist Stephen Hawking wrote,

“The multiverse concept can explain the fine-tuning of physical law without the need for a benevolent creator who made the universe for our benefit.”

Bernard Carr a Professor of Mathematics and Astronomy at Queen Mary, University of London said 15 years ago:

“If there is only one universe, you might have to have a fine-tuner. If you don’t want God, you’d better have a multiverse.”

So, if the multiverse *is* real, what are the implications for our thoughts about a Creator?

Stay tuned.

BREAK

John Dickson

In pop culture, few have played with the multiverse more than screenwriter Michael Waldron.

He was the screenwriter for the 2022 Marvel film, *Doctor Strange in the Multiverse of Madness* and the Disney+ TV series *Loki*.

He told CNN that the multiverse is a magnetic force for storytelling today.

“What about the present moment doesn’t make you yearn for an alternate reality?” he said, “Exploring the multiverse allows characters to physically realize and confront those fantasies ... for better or for worse.”

An article in *The Economist* recently speculated that our fascination with multiverse ideas - in pop movies, at least - stems in part from a desire to escape the traumas of our current reality.

John Dickson (tape)

I guess I, I'm wondering what you think is the attraction. Of this idea that it isn't just one linear universe. There are either many universes at the same time, or this constant, eternal loop of this universe.

Deb Haarsma

Wow. That is an interesting thing to speculate about. I think it must be part of human nature to just want to imagine a universe that is similar but different from our own. Um, to imagine what a, a duplicate of me might be like in a, a different situation or in the cyclical one you talk about, like, if we could replay it all over again, what might we do differently?

How could it turn out differently? It must be part of the human imagination that we keep coming back to this idea.

John Dickson (tape)

So do you think there are any theological implications of, um, believing there's, you know, there's a multiverse?

Deb Haarsma

Yes. So first of all, I believe that whether, um, our universe is all there is or whether there's a multiverse. As a Christian, I believe that God created it all. Having a scientific explanation or not having a scientific explanation is independent of the question of is there a God, a creator God? Science can't answer that question of God or not God.

So we have physical explanations for plenty of things on Earth or in the solar system, why the earth goes around the sun. We can fully document that with Einstein's theory of general relativity and gravity that. Is independent of the level of explanation of God being the one that sustains that, those laws of gravity and general relativity.

So if there is a multiverse, I believe that God created it, but there are theological implications. One is, does this do away with fine-tuning? So the fine-tuning is, has this beautiful resonance with what we read in scripture for God's intention in creating with the idea of a personal creator who mapped it all out, laid it out the processes, and designed a universe and a planet like ours that is Does that all go away if you believe the multiverse? Not entirely. I

believe the multiverse models would also need some level of fine-tuning. They need. It's not maybe the same physical parameters, but you still need the kinds of laws that we have in our universe. You need it to be the multiverse to be such that it can generate a universe like ours.

So it doesn't completely, uh, eliminate fine-tuning. It still would need some fine-tuning. It also doesn't answer the question of ultimate cause. So there's the cosmological arguments for God that are true in this universe and we believe they would be true in the multiverse as well. The idea that at some point you need an ultimate cause, the unmoved mover that is generating all that we see.

And that argument still holds. Uh, there's even, um, a theorem, uh, bode go and Lenin-theorized that, uh, If there is a multiverse that it had a beginning; um, they made a, a detailed argument about that. So it could be that there's still the beginning to the multiverse. Those are a few of the theological implications.

There's also some other theological implications people don't think of, uh, as often when you start talking about a multiverse, um, you're talking about this incredible level of vastness. And even if you're talking about our own universe being infinitely large, infinity is an amazing thing. You can imagine the biggest thing you can think of, but then it's bigger than that because it's infinite, and then it's even bigger than that.

So, uh, here we are on Earth. We're having a conversation here. But if the universe really is that vast, there's probably some planet out there that is very similar to Earth. And in fact, since it's infinite

or on a multiverse, you have a multitude of infinities, there's probably, there's gonna be an infinite number of earth-like planets, and that means that on one of them, there's probably a conversation.

One where you and I are having a conversation except it started 10 minutes earlier than we started today. You know, something very similar.

Now that starts to have theological implications. What does it mean if there are duplicates of me out there that are very similar to me and yet different? Um, but we can just think.

Some basic things based on our knowledge of God.

I think we would all still have free will. There's some parallels to, um, genetic twins on earth that have, um, identical genetics and yet still make their own life choices and have free will. And maybe it'd be like that for our dear duplicates out there. So that's an interesting realm to speculate about.

John Dickson

Let's press PAUSE. I've got a 5 minute Jesus for you.

This might be a brief one (for once) because, obviously, Jesus never spoke of a multiverse. The Bible doesn't contemplate a multiverse. So, maybe there's nothing at all to say.

Well, there's always something to say ... And, actually, there's something to say that is pretty important to me personally, both intellectually and spiritually.

While the Bible doesn't speak of a multiverse, of course, it does say that whatever exists, exists in and through God and, specifically, in and through Jesus Christ, the Son of God, the second Person of the Trinity.

We find it in a lot of places.

“In the beginning was the Word,” says the opening line of the Gospel of John, “and the Word was with God, and the Word was God. 2 He was with God in the beginning. 3 Through him all things were made; without him, nothing was made that has been made.”

John uses the important Greek word ‘logos’ here (translated as ‘word’ but it has a much richer meaning in ancient Greek-speaking cultures). “In the beginning was the logos. The logos was with God and was God. And everything was made through the logos”. And so on.

This is the same word used by the Greek philosophers for the rational principle behind the universe. The smartest of the philosophers had worked out that there seems to be a kind of operating system within the hardware of creation. They called it logos. In fact, the quotation from Plotinus I read earlier uses the same word: “We must conclude that the universal order (logos) is forever something of this kind.”

Or here is the pagan Greek poet Cleanthes in the third century BC, singing a hymn of praise to the Mind behind all things: “All the works of nature came to be established; you guide the universal Word of Reason [logos] which moves through all creation. You know how to bring forth order from chaos. You have joined together all things so that in them all one everlasting Word of Reason [logos] reigns.”

John is no doubt aware of this Greek background - as well as the Jewish idea that God created the world through his spoken word, “Let there be light” and so on - And so John cleverly draws on this logos theme to say that the divine operating system of the universe, the very mind of the Creator, is Jesus.

This is not a random idea in the NT, either.

Paul, independently of John, wrote (in a kind of poem, in Col 1): “The Son is the image of the invisible God, the firstborn over all creation. 16 For in him all things were created ... all things have been created through him and for him. 17 He is before all things; in him all things hold together.”

The writer to the Hebrews says the same thing in chapter 1 of that NT book - but I won't push the friendship with my nontheological listeners by going through all the passages!!

Here's my simple point. Whatever kind of bizarre universe or universes exist, they exist in and through God, and specifically Jesus the logos of God. Whatever scientists discover about reality is fine with me, because they're just discovering more about the

logos that holds it all together. In fact, I'd go further and say that it's precisely because there is a logos behind material reality that science is even possible.

But here's why this concept is so important to me, personally. It means God is both loftier than any mere 'god' of the pagan pantheon and nearer to us all than any potential local deity.

The pagan gods were thought of as objects within the creation. They are not outside creation, holding it together as the logos. That was never the claim. The gods are like Marvel characters. They're part of the story, not the writer of the story itself.

But within Christian thought, God is not distant, like a watchmaker, who wound the clock up billions of years ago, and now is just letting it unwind. Nor is he some lofty aloof grandfather of the universe.

No. The God revealed in Jesus, the logos, is simultaneously transcendent and immanent. At the same time, His distance from us is categorical and absolute—as the Ground of all things—and, yet, wonderfully, if “in him all things hold together”, that means he is nearer to me than my own breath.

I want to read a piece of philosophical theology that almost brings me to tears—it did when I first read it. It comes from ... Thomas Aquinas in the 13th century. It's nerdy but it's life-changing (for me):

“God is in all things; not as part of their essence, but as an agent is present to that upon which it works. God is ‘very being’ by his own essence, and so ‘created being’ must be his proper effect, just as ‘to ignite’ is the proper effect of ‘fire’. God causes this effect in things not only when they first begin to be, but as long as they are preserved in being. But being is innermost in each thing and most fundamentally inherent in all things. Hence it must be that God is in all things, and innermost. He is above all things by the excellence of his nature, yet he is in all things as the cause of the being of all things.” (Thomas Aquinas, Summa Theologiae 8.2-3).

Get alone in a dark room one day, and think this thought, even as a thought experiment. The logos (who is Jesus) is utterly other and above and separate from me as a mere creature in time. The chasm between Creator and creature is infinitely vast. And, yet, because the logos is holding every particle in existence in every moment, there is nothing in the universe—not even my own body—that is nearer to me than the logos who is Jesus.

You can press PLAY now (or just get alone in that dark room).

John Dickson

Do you actually think that's real? Do you, do you think there is a - I mean, Am I an astrophysicist in one of these worlds?

Deb Haarsma

Oh, wouldn't that be cool? And now we're back to what you mentioned earlier, how, um, what is this human desire to consider these alternate duplicates? You know, like maybe on, on that one. I don't know, maybe I won the Nobel Prize there. That would be really cool. And just the thought that somebody like me might have done that is exciting.

So, a. Yeah. Do I think that I actually have duplicates out there? I don't know. I did read how somebody calculated the nearest duplicate to you would be not in this observable universe. It would be trillions of times further away than that. So there is no chance you'll meet your duplicate. So just reassuring on that point.

John Dickson

Sort of reassuring ... but there are questions.

John Dickson (tape)

A scientist friend, um, who's a little bit sceptical about the multiverse, asked me to ask you this question, right? How, how is a scientist supposed to get predictions out of a multiverse? If there are an infinite number of universes, how can anything be more likely than anything else? Therefore, the whole idea of prediction is gone.

Deb Haarsma

The different models of the multiverse do each make predictions and they make predictions for our universe that we can test. They

also make predictions about other universes that we cannot test. And for some people that's enough to say this is not science, but then, there's a mathematical rigour underlying these models that are worth considering and not just brushing off.

It isn't simply, uh, wild speculation. It isn't just armchair theorizing. There is an incredible amount of math. It's really high level. Um, so there's this level of sophistication in it and we, we will never know. So that's another level of this we can speculate all day.

We might come up with great physical theories, maybe even theories that everybody has consensus on, and we'll still never actually know if there are other universes out there.

John Dickson

Does that make this whole conversation a little bit pointless here? You know, uh, We're talking about something that in principle we could never really know about.

Deb Haarsma

Yeah, it does make it a little bit pointless, but well, uh. That's what being human is about, imagining things that are beyond us and speculating about them. It certainly has made a great vehicle for storytelling. Um, you see it in the different motion pictures. You see it in a lot of classic science fiction of imagining these parallel worlds, except they always imagine us being able to interact and go back and forth, uh, between them.

And often it's mostly a vehicle for better understanding ourselves in this universe. But we'll never know.

John Dickson (tape)

Do you have any sense of how popular, uh, the multiverse theory is or, or relative confidence about the multiverse theory is amongst professional scientists in physics and or in cosmology? I mean, is it a majority? that think we're on a good thing thinking about the multiverse or is it a minority?

Luke Barnes

It depends how seriously they take fine tuning is my example, my, my impression. I haven't done anything systematic here. But, um, so for example, I wrote a book, A Fortunate Universe, with my colleague Geraint Lewis at the University of Sydney. Um, having been convinced that this fine tuning thing is a real problem, um, he is an advocate for the multiverse.

And you find that for people who really sort of have seen the depth of this, you know, change this number by a little bit, ruin the universe problem, that that's a real thing. Um, more generally, the idea of inflationary cosmology. is, um, at least very, very widely discussed. It's almost standard. Uh, the, there's an extra question there of whether a very fast acceleration of the universe in its early stages will actually give you the multiverse you think it will, whether it'll actually make lots of different bits of the universe rather than just one really big bit that blew up really fast.

That's an open question, but again, there are sort of arguments that send some people a certain way. So in, in, in total, There's a lot of people who don't see the problem and so don't, this all seems like science fiction. There are people who see the problem who say that we need something like this. And I think there's an awful lot in the middle who aren't quite sure what the fuss is all about.

John Dickson

Hey, skip forward 30secs if you don't want a spoiler for 'Spiderman Far From Home'.

When the trailer was released, fans went nuts at the prospect of a Marvel multiverse (you should have seen Director Mark around the studio!!!).

But it turns out, it was all a ruse. Mysterio lied. He wasn't from a different universe. He was just a damaged earth-bound dude out for revenge.

Director Mark had to wait for the 2022 Marvel flick, Dr Strange in the Multiverse of Madness. That's where the multiverse actually became a thing - at least in the Marvel universe.

As for this world, where are we left, scientifically and spiritually? I asked Professor Deb Haarsma to land this celestial plane of ours

...

John Dickson (tape)

I'd like to finish with a, a question, um, about your own sort of theological belief. Um, what do you think is the [00:26:30] best reason? accepting that there is a creator.

Deb Haarsma

Ah, well for me it's not something with scientific proof. For me, it's how the biblical worldview. And so I'm thinking not only of God as a creator, but uh, Jesus Christ as the incarnate God on earth and the way scripture describes. So that's the God that I'm talking about. But the God of the Bible is such

What I see in the biblical worldview, That I see for me is this, uh, amazing lens or spectacles by which I look out and it brings everything into focus. It helps me understand the natural world. It helps me understand myself. It helps me understand human nature and human culture. It helps me understand spiritual experience and purpose and meaning, and the big questions and all of those come together in, um, a, a coherent and beautiful way.

That, um, it compels me to believe most of all the center of it is that the creator God is a person and is the person of Jesus Christ and a person that I can know and relate to as a believer. And that is utterly compelling to me that the amazing. God of the universe with all of that power and all of that mathematical precision is also the one who loves me, is the lover of my soul.

I continually astounded by that and I fall in love with God all over again. Every time I think of it.

John Dickson (tape)

Are you saying therefore, Deb, that there aren't for you any scientific um, reasons believing in the creator's existence?

Deb Haarsma

Certainly, there's a lot in the universe that affirms my belief in an intelligent personal creator. So for instance, um, When I was a student taking my first physics class, we had to design our own experiments.

We were doing experiments every week, um, have to measure with rulers and dropping balls and things. And then the, uh, professor asked us to design our own experiment. And so we put the stuff together and we figured out stuff to measure. We made our measurements, and then we went to the textbook and we did the calculations about what it was supposed to be, and then we compared them.

And we were amazed 'cause it actually worked. So, you know, we were hoping, but it actually did. But for me, I had in that moment, I'm like, why should that even be the case? We have this textbook here written by human beings that has these abstract equations and somehow that's describing the real world.

There's this incredible mathematics underlying everything we see in the behavior of particles and forces and stars and galaxies. Where is that coming from? And for me, it's very compelling to fit that with the picture of an intelligent creator. God,

John Dickson (tape)

And the multiverse doesn't undermine that. You're saying, because the maths would have to work in an overarching way?

Deb Haarsma

That's right. Yeah. So it's just bringing another layer to that mathematical precision and, and regularity and consistency that now applies across all of these realms of universes upon universes. For me, it actually expands my faith because it shows me the vastness of God that God could conceive of. Uh, And even create all of that vastness.

It shows me something more of who God is and how far beyond me God is.