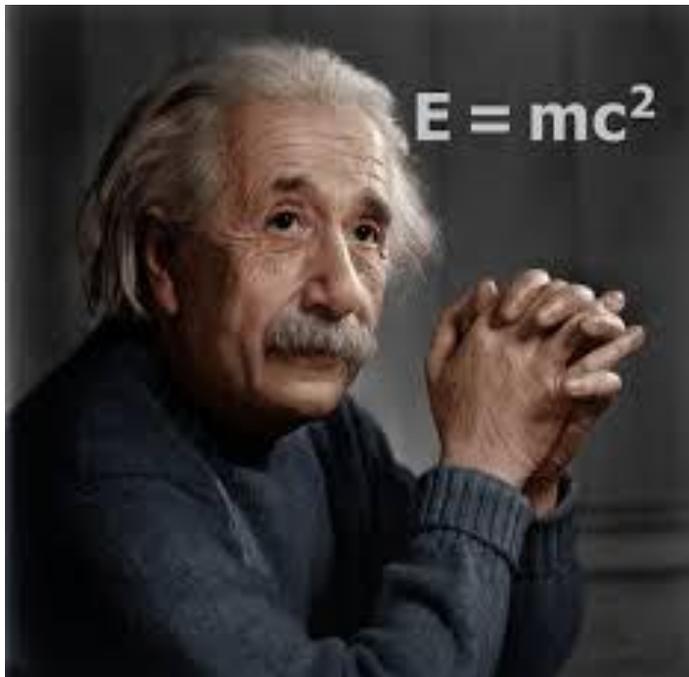


Mysterious Energy Power House of our Universe Dr Michael Jarvis

The genius of Albert Einstein brought our world into the 'Atomic Age', heralding major advances in technology, medicine and our understanding of 'reality' but also enabling development of weapons of mass destruction, such as the Atomic Bomb.



The fundamental discovery was summarised into Einstein's famous formula $E = mc^2$.

This gives the relationship between all matter (m), the speed of light (c) and energy (E).

One amazing and mysterious aspect of this relationship between energy and matter is that it is also related to the speed of light squared. As you know light travels in a vacuum at 300,000 km each second. The speed of light squared is 300,000 X 300,000, namely the unimaginable 90,000,000,000 km squared per second squared.

This tells us that the amount of energy locked up in matter must be enormous. **In fact 1g of matter represents the energy equivalent of exploding 21,000 tons of TNT!**



The Second World War was ended by America exploding atomic bombs above two Japanese cities. These cities were totally destroyed but the actual amount of matter converted into energy when each of these bombs was detonated was only about one gram !

This photo shows the almost total destruction caused to Hiroshima by energy from only ONE GRAM of matter when converted into energy.

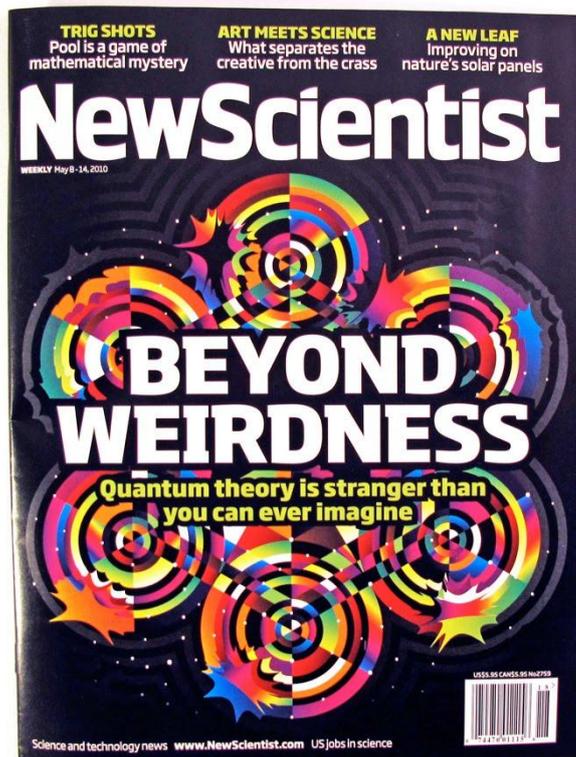
How about your human body? How much energy is locked up in the matter that makes up your body? The average human has about 2.0 kg of ash when we are cremated. During cremation the water, carbon and nitrogen are lost as gas and harder to measure. However, even if the 2kg of ash was converted into energy it would be the equivalent of exploding 42,000,000 tons of TNT.

Clearly all the matter making up our universe represents such a vast amount of 'locked up' energy that we can be justified in imagining it to be infinitely great.

Even greater mysteries

When I was at school in the 1950's we were taught that the smallest particles of matter are atoms. Today we know that atoms are made up from even smaller bundles of energy that we have chosen to call 'particles'. There are many such particles and physicists have given each of them a different name.

These minute and invisible 'building blocks' of our universe are studied by Quantum Physics. However, the more we learn about quantum particles the more mysterious they have become. Einstein called their behaviour 'spooky action at a distance' because it has become clear that reactions between sub-atomic particles can take place instantaneously, even if the particles are separated from each other by enormous distances.



Physicists have often referred to the mysterious interactions as 'Quantum weirdness'

As this cover on New Scientist Journal states '**Quantum theory is stranger than you can ever imagine**'

Einstein's formulations relating to matter have been tested in many ways and so far have stood the test of time. However, one fundamental is that there is a maximum speed limit in our universe, namely the speed of light in a vacuum.

According to the same formulations that have led to our atomic age, matter cannot be accelerated to the speed of light. The speed of light is the boundary between time and timelessness. However, observations of sub-atomic particles have suggested that within the quantum dimensions of reality, from which our visible universe is constructed, quantum particles can interact with other particles faster than the speed of light.

3.

In fact, the observations suggest that these interactions between so-called 'entangled' particles take place INSTANTANEOUSLY. That means that these interactions appear to be much faster than the speed of light.

Measurements made by Chinese scientists Juan Yin and associates in 2013 have shown that these interactions occur at least 10,000 times faster than the speed of light (www.livescience.com/27920-quantum-action-faster-than-light.html).

We just do not have the means of narrowing this down further but **all the indications are that these interactions are in fact instantaneous!**

Another amazing prediction from quantum physics is that reality does not exist until it is measured by one of our time-based instruments. For instance the nucleus of a hydrogen atom is linked with one minute 'particle' that can either manifest itself as a negatively charged electron or a positively charged positron. Before a measurement is made both of these opposite realities exist together in 'superposition' but the moment we try to measure them they materialise into only one of these alternatives.



Einstein did not like this at all. It seemed to him that the observations were suggesting that God 'played dice'. However, **experimental results released this year confirm the reality of 'Quantum weirdness'**. These results are published by a team of scientists headed by Manning. (Journal Nature Physics:2015; DOI: 10.1038/nphys3343)

One description of this experiment states: ***The bizarre nature of reality as laid out by quantum theory has survived another test, with scientists performing a famous experiment and proving that reality does not exist until it is measured.*** (Science Daily. May 27 2015)

Implications of quantum physics?

Science is telling us that when energy is trapped into the matter of our universe it becomes trapped into time. The scientific understanding is that time only came into existence at the Big Bang Creation.

However, quantum physics is possibly suggesting that our time-trapped energy (matter) is made up from little bundles of energy (quantum particles) that behave as if they are existing within a dimension of reality that is not limited by time. Hence the observed phenomena of quantum systems existing in a 'superposition' of various states until measured by a time-based scientific instrument. Their reality only materialises when we freeze them into time,

4.

by measuring them with our instruments. All of our instruments are time related since the whole visible universe is locked into the so-called 'arrow of time' taking us from our past into our future.

The observation that quantum realities can interact instantaneously with other quantum realities, even when separated by vast distances (entanglement) also may suggest that they are operating within a Timeless Dimension of reality.

Can it be that our time-locked visible universe is made up from and held together by quantum realities (bundles of energy) that exist in independence from time? Quantum physics may be pointing us towards this conclusion!

Furthermore, quantum physics is suggesting that there seems to be a mysterious inter-connection and shared awareness throughout the quantum reality and we know that it is this quantum reality from which our universe is made and held together.

Is science close to understanding the existence of God?

It is fascinating to me that the Bible repeatedly states that God operates within timelessness. Furthermore, the human writers of various passages in the Bible expressed truths that seemed unimaginable in a pre-scientific age but are now becoming much more acceptable – although no less difficult for our human minds to fully grasp.

For instance the writers of Psalms refer to God as: *'From everlasting to everlasting you are God'* (Psalm 90:2 and similar statements elsewhere in the Bible). We can also translate this as: *from timelessness to timelessness you are God*. In other words God is not limited by time. An intelligence operating within a Timeless Dimension can presumably relate instantaneously to any point within our 'Arrow of Time' reality.

In Colossians we read: *For by him all things were created: things in heaven and on earth, visible and invisible, whether thrones or powers or rulers or authorities; all things were created by him and for him. He is before all things, and in him all things hold together* (Colossians 1:16-17 NIV translation).

In 1 Timothy 6:15 we read: *God, the blessed and only ruler, the King of kings and Lord of lords, who alone is immortal and who lives in unapproachable light, whom no-one has seen or can see*. We know that light is the most visible example of the energy in our universe and it is also the boundary between time and timelessness. Not surprising that God is described as being invisible to human eyes and hidden within the timeless mysteries of infinitely great energy.

When God spoke with Moses from the burning bush that did not burn, he revealed himself as the invisible and timeless God. Moses could not see him and was told to take off his sandals because proximity to God was Holy Ground. We read: *"Do not come any closer" God*

5.

said, *“Take off your sandals, for the place where you are standing is holy ground”* (Exodus 3:5).

When Moses asked him for his name God said: *“I am who I am. This is what you are to say to the Israelites: **I AM has sent me to you**”* (Exodus 3:14). God seems to be saying “I am in the past, I am in the present and I am in the future. I am the ever present and timeless God”.

Moses was given a similar revelation on Mount Sinai when he heard God saying: *“But”, he said, “you cannot see my face, for **no-one may see me and live**’* (Exodus 33:20 NIV). This encounter between God and Moses also introduces us to another mystery, namely that God revealed himself to Moses in three different forms of existence.

We read that this same God who told Moses that no one can see him and live, nevertheless revealed himself to Moses in another form within the Tent of Meeting. We read, *When a prophet of the Lord is among you, I reveal myself to him in visions, I speak to him in dreams. But this is not true of my servant Moses, he is faithful in all my house. **With him I speak face to face, clearly and not in riddles; he sees the form of the Lord*** (Numbers 12:6-8).

This same unapproachable God revealed himself in yet another way to Moses, as a Spirit (Holy Spirit). We read, *Then the Lord came down in the cloud and spoke with him, and he took of the Spirit that was on him and put the Spirit on the seventy elders. When the Spirit rested on them, they prophesied, but they did not do so again* (Numbers 11:25)

A bit further in this encounter we read that Moses said: *“I wish that all the Lord’s people were prophets and that **the Lord would put his Spirit on them!**”* (Numbers 11:29 NIV). Here God was revealing to Moses that the same ‘unapproachable God’ whom no-one could see and live, not only revealed himself in visible form to Moses within the Tent of Meeting, but he also interacted with Moses and the elders through his Spirit.

In these Bible passages relating to the time of Moses we already see revelation of the mystery that the ONE GOD can at the same time reveal himself in three ways. Within the New Testament Bible books this revelation is further expanded upon and has resulted in the Christian understanding of the Trinity. God is revealed as the unapproachable ‘One and Only’ Creator who is hidden from us in unapproachable energy, God revealed to us in Jesus Christ and God revealed to us through his Holy Spirit.

In the same way that God is not limited by time or place, we read that the Holy Spirit is not limited by time or space. It is God as Holy Spirit who interacts with each God-seeking human throughout the world – simultaneously!

In the Bible book of Hebrews we read: *In the past God spoke to our forefathers through the prophets at many times and in various ways, but in these last days he has spoken to us by his Son, whom he appointed heir of all things, and through whom he made the universe. The*

Son is the radiance of God's glory and the exact representation of his being, sustaining all things by his powerful word (Hebrews 1:1-3 NIV).

Passages like this introduce us to the concept that God in his approachable revelation (His Son) has been part of the ONE GOD trinity from before time. He was present at the creation of our universe (John 1:1-3). He was present in the Garden of Eden account (Genesis 3:8). He was present as one of the three 'men' who spoke with Abraham before the destruction of Sodom (Genesis chapter 18). He was present as the 'Captain of the Lord's army' who appeared to Joshua before the Battle of Jericho (Joshua 5:13-15).

The Bible contains accounts of angels appearing to people but when the instruction is *"take off your sandals for you are standing on Holy Ground"* this refers to an encounter with God, not an angel. Joshua's encounter was with God in visible form, the same person of the Godhead who appeared to Moses in the Tent of Meeting.

In our times we can add to these revelations about God, through the amazing scientific discoveries that help expand the words of Psalm 19, *The heavens declare the glory of God; the skies proclaim the work of his hands. Day after day they pour forth speech; night after night they display knowledge. It is scientific discovery that is vastly enlarging the 'voice of God' speaking to us from creation.*

Science is enabling God to speak to our scientific and technological generation in new ways. It is telling us that our universe is built up from and held together by a mysterious energy 'power house' that behaves in ways indicating the reality of a Timeless Dimension of reality. Furthermore, within that Timeless Dimension there seems to be instantaneous interaction and instantaneous awareness.

Science is telling us that the Bible revelations about God, his timelessness, his presence everywhere (omnipresence), his universal awareness of every event and process (omniscience) are realistic revelations. It should no longer be surprising to us that Jesus said: *"Are not two sparrows sold for a cent? Yet not one of them will fall to the ground apart from the will of your Father. And even the very hairs of your head are all numbered. So don't be afraid; you are worth more than many sparrows"* (Matthew 10:20-21).

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