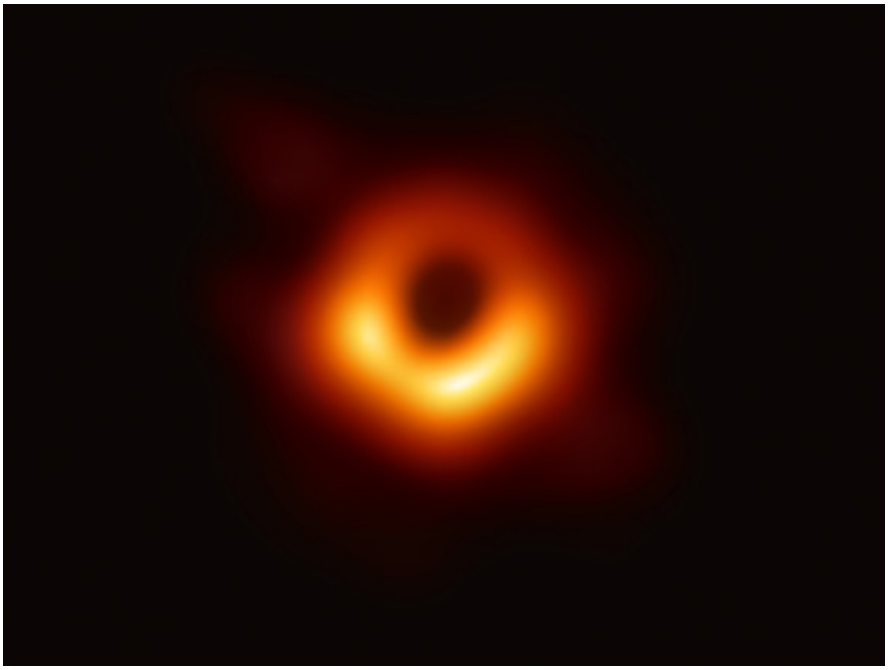
What the M87 Black Hole Image Reveals



by Clark M. Thomas

Above you are looking at an algorithm-adjusted composite of multiple radar images of a supermassive black hole in M87 with 6.5 billion solar masses, 55 million light years away. Additional frequency data was received from several space observatories.[1] The lumpy surrounding light outside its event horizon is mostly its plasma photosphere. Nothing like this object has ever been imaged before.[2] The science story behind this amazing image is

[1] https://www.jpl.nasa.gov/news/news.php?feature=7372

[2] https://www.express.co.uk/news/science/1112414/Black-hole-picture-black-hole-explained-event-horizon-telescope-image-black-hole-photo

fully worthy of a physics Nobel Prize.[3] What physics seemingly reveals above is only part of what actually is there. At the least, what we first see is not "proof" of General Relativity.

The purpose of this essay is not to redundantly describe everything about the technical matrix of acquiring this unique image – but to point out the physics beyond what seems obvious. It is strongly recommended that you read footnoted links herein, especially those regarding the vacuum speed of light; and push/shadow net forces involving collective energy/mass particles.

Image, Mass, and Physics

There is no individual optical or radio telescope, or array of telescopes at one location on Earth, that can *successfully image* the shadow of any black hole event horizon. Imaging resolution sufficient to duplicate this result needs an interferometer like the global Event Horizon Telescope with its virtual diameter of some 12,000 kilometers. An interferometer including space-based instruments even on the moon could produce sharper images.

Furthermore, there are three ways to describe the *mass* of such black holes: "The black hole in M87, which is located about 55 million light-years from Earth, is the first black hole whose mass has been calculated by three precise methods: measuring the motion of stars, the swirl of surrounding gases and now, thanks to the Event Horizon Telescope imaging project, the diameter of the black hole's shadow."[4]

From the first published image comes this gem: *The model of inter-dimensional wormholes was dealt a serious blow by the discovery that this measured event horizon's diameter is larger than what would be expected if this black hole were a wormhole.*

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[3] https://fivethirtyeight.com/features/forget-the-black-hole-picture-check-out-the-sweet-technology-that-made-it-possible/

[4] https://www.sciencenews.org/article/m87-black-hole-image-best-mass-estimates-star-motion

Some will say this negative result supports GR – which is odd, as wormholes (by theory extension) should be an associated phenomenon of interdimensional GR branes and singularities.

This "seemingly minor result" more likely casts doubt on the facile idea of additional dimensions beyond the classical four; and loosely on the ideas of gravity vortices, rubbery branes, and of multiple universes inside many dimensions. In other words, this one unforeseen data point clearly offers an opportunity to think beyond the popular century-old physics paradigm.

Now that we have a real experimental image to compare the old GR physics model against a modern elegant model, let's see where the two correlate, and where they have little or no causal relationship. Meanwhile, theoretically incorrect mathematical expressions apparently congruent with observed astrophysical phenomena can be good correlating proxies for what is causally happening.

The popular math model of general relativity (GR) gravity funnels leads to the seemingly inevitable idea of a singularity, along with its radiant gravity field stronger than the ability of nearby photons to escape, creating a BH event horizon. However…

There are well known incongruences between GR and quantum theories. Each side guards its claim to being correct, saying, because we can't measure what is going on inside the event horizon it is "meaningless" to make hard claims. This positivistic paradigm stand-off will continue until an agreed comprehensive theory is accepted. Such a causal theory is being developed, and experimenters are invited to put more flesh on the skeleton.

The most prominent GR event-horizon theorist was Stephen Hawking. What Hawking said about black holes is both original and good. However, his original ideas are not good; and his good ideas are not original:

Beyond everybody's appreciation for his personal courage and sense of humor (both irrelevant to astrophysics itself), there are serious questions about his ego drive to stand out in the field. Two of his *good ideas* – the singularity, and "Hawking radiation" – are *not original*. Roger Penrose, his teacher, helped develop the GR math for a black hole (BH) singularity. Also, Hawking simply stole the good idea of "Hawking radiation" from Russia's leading nuclear physicist whom he met in Moscow, and thereafter shamelessly named the original Russian model after himself.[5]

Hawking's *original, but wacky, ideas* for how information is retained as holograms inside the event horizon (EH), and how the EH's edge itself is fuzzy, are *not good*.[6] Nevertheless, giddy fans placed his prosaic cremains directly between the proverbial rolling bones of Newton and Darwin.

The BH Image in Real Context

There are two gravitational models that can mathematically correlate with what a vector image shows. There is only one model that both correlates *and* corresponds with GR and quantum theory, plus multiple sources of hard evidence questioning the cosmological validity of GR as a paradigm.

The WRONG model of rubber-sheet-like geometric gravity branes between many universes is now strongly *questioned by Event Horizon Telescope data* that revealed this BH is <u>not</u> also a worm hole to other dimensions. So it seems that boring Isaac Newton is still relevant, with some additions, when we are talking about three *space* dimensions and a fourth dimension of kinetic *time* as measured by light.

The wrong model allegedly supersedes Newtonian physics with the unitary *spacetime* idea. Within the full GR idea are all sorts of weird errors – but the fundamental weakness is dancing around

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[5] http://astronomy-links.net/Hawking.legacy.pdf

[6] http://astronomy-links.net/BH.Paradox.pdf

the question of exactly *how and why* the precise speed of photon light in a vacuum ("c") is always such. Nobody has previously found an answer, including Newton (who thought light was immediate, a reasonable idea for the 17th century); and Einstein, who ironically was not sufficiently relative within his Relativity.

The actual speed of light in a vacuum has been measured, so we know the correlation. But more is needed to explain terminal velocity causation. Old ideas had light being energy without mass, which is incomplete and absurd. Einstein and the early quantum theorists saw light as both particles and waves. That second model is very close to reality. Put some tiny inertial mass with tiny individual particles to better describe them; then explain the force and interval for achieving terminal velocity; and thus approach a superior 21st-century physics.

Quantum field theory that speaks of the priority of waves by itself, severely discounting particles, cannot bridge the gap; nor can the fraudulent quantum idea of instant entwined action at a very great distance.[7]

The solution to the previous "c" paradox is simple.[8] It starts with the idea of strings. Strings to relativity theorists are two-dimensional (impossible) wiggly things even smaller than the Planck limit (possible). They can communicate across brane barriers thanks to specialist strings called gravitons having tractor-beam powers. Black-hole worm holes between and among universes supposedly work this way, which is absurd. Here physics needs more brain, and less brane.

It is with exquisite irony that we need to go back to Newton and his best friend for three years, Nicolas Fatio. Fatio came up with a model for gravity potentially superior to Newton's own metaphysics. Fatio's simplistic idea of gravity being caused by streams of omnidirectional "impactors" was kept alive until the

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[7] http://astronomy-links.net/quasars.photons.pdf

[8] http://astronomy-links.net/LightSpeed.pdf

late 19th century by Le Sage. Frankly, the base idea of impactors, while brilliant, was fatally flawed as originally formulated. When Einstein came along there was left no viable relativistic gravity theory. However, his Nobel was not earned for GR, but for his study of seemingly random Brownian impactor motion, which has since joined quantum theory lore. We can say that Einstein was his best critic.

How does a modern push/shadow gravity theory work? It is sufficiently different from the original impactor model that we should call it a new theory. Its key quality is how the new theory smoothly links action at great distance with action at a very small distance. We don't need two theories quitting at their mutual GR/quantum borders. Properly expressed, the modern push/shadow model, *along with* electromagnetic Coulombic forces, causally explains and correlates with all kinetic forces, even those within stable event horizons.[9]

This first "black hole image" is fairly low resolution, but sharper versions should emerge when resolving wave frequencies become smaller.[10] It took some 200 collaborating software programmers three years to assemble this first image from multiple sources and patchy data. (They were led by Katie Bouman,[11] now 29 years old, who first developed a crucial algorithm, and soon may become one of three people potentially honored by the Nobel physics committee.)

We are familiar with looking at images of 3D objects projected onto 2D surfaces. This supermassive BH is 3D within a 4D visible universe, seen on a 2D computer screen. The doughnut-like 3D nature of this seemingly flat image is there to envision. The full

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9 http://astronomy-links.net/Quanta.and.General.Relativity.pdf

10 https://www.forbes.com/sites/startswithabang/2019/04/15/the-two-scientific-ways-we-can-improve-our-images-of-event-horizons/#f62f3de2ddd5

11 https://www.patentlyapple.com/patently-apple/2019/04/macbook-user-katie-bourman-wrote-the-algorithm-that-allowed-scientists-to-capture-images-of-a-black-hole-for-the-first-time.html

object, if imaged from all directions, would be spherical, because net energy/matter comes from all spherical directions.

Why does part of our image appear something like a lumpy circular race track? This illusion may be in part luck, but more likely is the difference between looking down on something, and looking horizontally through more plasma. By analogy, in Earth's atmosphere we see through more atmosphere when we look at the sky near the horizon, and are less obscured toward the zenith directly overhead. Some of the data assemblage could have enhanced contrast, thereby making the "hole" easier to see.

None of this difference is what you would expect from all the MANY VORTICES that should surround a spherical black hole. There is not just one potential BH vortex within better GR theory, but a myriad of them. Their summation is needed to support the absurd idea of gravity as slope. In that case we could see less of one horizon, and more evenness. Only the idea of a single brane supports just one vortex. Here is a sublime example of the lack of relativity within Relativity.

The better 21st century PUSH/SHADOW MODEL does away with classroom rubbery vortices. It incorporates very tiny points of kinetic mass (at sub-Planck dimensions around 10^-37m), and waves. Wavy points can present to us as floating interstellar "dark matter" mass, where each yin/yang unit, or matter/energy point is directly undetectable. Random swarms of them are gravitationally detectable in dimensions larger than the Plank. Thereby the swarming summation of dark matter patches, or as objects like planets and stars, yields apparent gravitational effects without the need for weird inter-brane tractor beams.

Multiversal streams of these tiny impactors, called yin/yang particles, are blocked or deflected by massive aggregates of yin/yang particles inside the so-called singularity. This net effect extends out to the radius of each event horizon. Whereas less dense objects, such as Earth, partially block or deflect only some inter-universal flows of yin/yang particles – BH "singularities"

stop all that come within each Schwarzschild Radius (SR), a formula of mass and distance. This is how we get a visually black event horizon. A crude comparison would be the difference between penumbras and umbras.

There is no such thing as a *sustained* pure point singularly with infinite mass and energy. Incoming energy and mass would vanish into the zero-ness of any pure point, which is impossible. Also, a mathematically pure point singularity would not produce a push/shadow event horizon. The closest thing to singularities is the precise bounce-back moment when another big bang is produced when vast inward yin forces are repelled by reactive yang quantum forces inside the positive-diameter singularity.

Outside each SR, kinetic masses experience enough centrifugal escape velocity to offset increasingly weak centripetal net force attraction outside the horizon. This is the region where we can detect the plasma photosphere, and in a slightly more distant orbit revolving stars which we can see and measure.

Both the M57 supermassive BH – and our Milky Way's (MW) less-supermassive BH, which is only about 0.0006 of the mass of that in M57 – present us with what looks like a circular plasma highway seen face on. This face-on sample size of two among billions of supermassive BHs in the visible universe is likely a common coincidence.[12] Whether there are one or multiple plasma highways around any BH, neither gravity theory is proven or disproven with such a sample.

If we get far enough away from all large masses such as the Earth, the Sun, or even a BH, we would seemingly float in empty space. Nevertheless, trillions of multiversal yin/yang particles (called by some "quanta") penetrate our bodies every second, and fully populate so-called empty space. The key in sufficiently deep space is that from any direction blocking shadows shrink at distance, yielding net equal pushing flows from all directions.

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[12] http://astronomy-links.net/SBH&MV.pdf