

Pope Francis & Stephen Hawking unveil black holes

“There are no black holes.”

Stephen Hawking made this stunning assertion in a new paper he uploaded on January 22 to the Internet “arXiv” site for physicists.

As Hawking did so, Pope Francis was engaging in a meditation, at his daily Mass in the Domus Sanctae Marthae in Rome, on a different kind of wormhole: “the worm of jealousy and envy,” which divides Christian communities by means of gossip.

First, let’s consider Hawking’s latest thoughts on black holes.

Physicists have termed the point of no return around a collapsed star with an irresistible gravitational force the “event horizon.” But now, in an exciting new development, Hawking theorizes that no such boundaries exist.

Instead, there are only



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“apparent horizons which persist for a period of time.” Thus, black holes need to be reconceived: as entities that hold matter and energy only in a temporary prison. “The absence of event horizons mean that there are no black holes – in the sense of régimes from which light can’t escape to infinity,” writes Hawking.

Famously, by doing the math, Hawking discovered back in the 1970s that black holes could slowly shrink their event horizons. Consequently, they would be able to spew out what physicists call “Hawking radiation.” But today, the new kind of black hole “prison break” scenario that Hawking proposes is even more radical.

Hawking’s new proposal aims to resolve a very disturbing paradox only recently discovered, by theoretical physicist Joseph Polchinski and his colleagues, known as the “black hole firewall paradox.” Their research shows



Stephen Hawking

how event horizons can catch fire in accordance with the laws of quantum mechanics but generate, in the process, an appar-

ent contradiction with Einstein’s theory of general relativity.

In response, Hawking elegantly resolves the mathematical paradox by asserting that in actuality there are no event horizons at all. Rather, any blaze of quantum fluctuations will be unable to create an absolutely impenetrable firewall around a black hole.

Instead, Hawking envisions that the region of space-time in question is so chaotic that trying to pin down stable event horizons there is as pointless as trying to pin down the weather a year in advance.

Hawking thus avoids the paradox’s demand that we must throw out either quantum theory or relativity theory, both being hard-won human achievements in our knowledge of nature. Instead, we may deepen our appreciation of the subtle physics that allows only limited “weather forecasting” around the chaotic entities called “black holes.”

Hawking makes his case in a short but sweet paper, only two pages long. Similarly, Pope Francis is accustomed to engaging in short but powerful meditations. Consider the Pope’s latest thoughts on how “the worm of jealousy and envy” creates a wormhole in our hearts.

“It was this door, the door of envy, through which the devil entered the world,” said the Pope spoke in his January 23 homily. When members of a Christian community open this door of envy, the community “ends up divided:

one against the other.” And “this is a strong poison – a poison that we find on the first page of the Bible in Cain.”

“The envious person, the jealous person, is a bitter person who doesn’t know how to sing, how to



Pope Francis

praise, or know what joy is,” said the Pope. Theirs is “a bitterness that spreads throughout the whole community,” as they become the “sowers of bitterness.” Consequently, “gossip divides the community, destroys the community. Rumors are the weapons of the devil.”

Sadly, if bitterness takes root as the singularity within our hearts, love is unable to come out of us. The only radiation that escapes from us is gossip.

I’m almost tempted to name such gossip, “Bergoglio radiation,” because this Pope is so good at describing how personal horizons can shrink, causing gossip to spew forth. As our horizon shrinks, we withdraw into ourselves, collapsing under the powerful gravitational forces of jealousy

and envy, but still we spew.

And much like the “black hole firewall paradox,” the situation is so chaotic that even if you are not the one gossiping, simply being near such people can lead to incineration. Imagine what damage a gossiping pastor, for example, could do to a community.

But as with Hawking’s view of firewalls around black holes, so too should we view the doors of evil flung open in the chaotic regions around us: The law of the universe will not let these walls of fire stand for long.

As Saint Thomas Aquinas says in his Treatise on Law, “sin does not destroy the whole good of nature.” Even in a bad man, “there remains in such a man an inclination to fulfill the demands of the eternal law,” because his badness does not dominate “to such an extent that the whole good of his nature is corrupted.”

Pope Francis called for prayer for “our Christian communities so that this seed of jealousy will not be sown between us, so that envy will not take root in our heart, in the heart of our communities, and so we can move forward with praise to the Lord, praising the Lord with joy. It is a great grace, the grace of not falling into sadness, being resentful, jealous, and envious.”

So, pray for climate change.

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