

Could the Milky Way become a quasar?

February 27 2015, by Fraser Cain



An artist's illustration of the central engine of a Quasar. These “Quasi-stellar Objects” QSOs are now recognized as the super massive black holes at the center of emerging galaxies in the early Universe. Credit: NASA

A quasar is what you get when a supermassive black hole is actively feeding on material at the core of a galaxy. The region around the black hole gets really hot and blasts out radiation that we can see billions of

light-years away.

Our Milky Way is a galaxy, it has a supermassive black hole at the core. Could this black hole feed on material and become a quasar? Quasars are actually very rare events in the life of a galaxy, and they seem to happen early on in a galaxy's evolution, when it's young and filled with gas.

Normally material in the galactic disk orbits well away from the the supermassive black hole, and it's starved for material. The occasional gas cloud or stray star gets too close, is torn apart, and we see a brief flash as it's consumed. But you don't get a quasar when a black hole is snacking on stars. You need a tremendous amount of material to pile up, so it's chokes on all the gas, dust, planets and stars. An accretion disk grows; a swirling maelstrom of material bigger than our solar system that's as hot as a star. This disk creates the bright quasar, not the black hole itself.

Quasars might only happen once in the lifetime of a galaxy. And if it does occur, it only lasts for a few million years, while the black hole works through all the backed up material, like water swirling around a drain. Once the black hole has finished its "stuff buffet", the [accretion disk](#) disappears, and the light from the quasar shuts off.

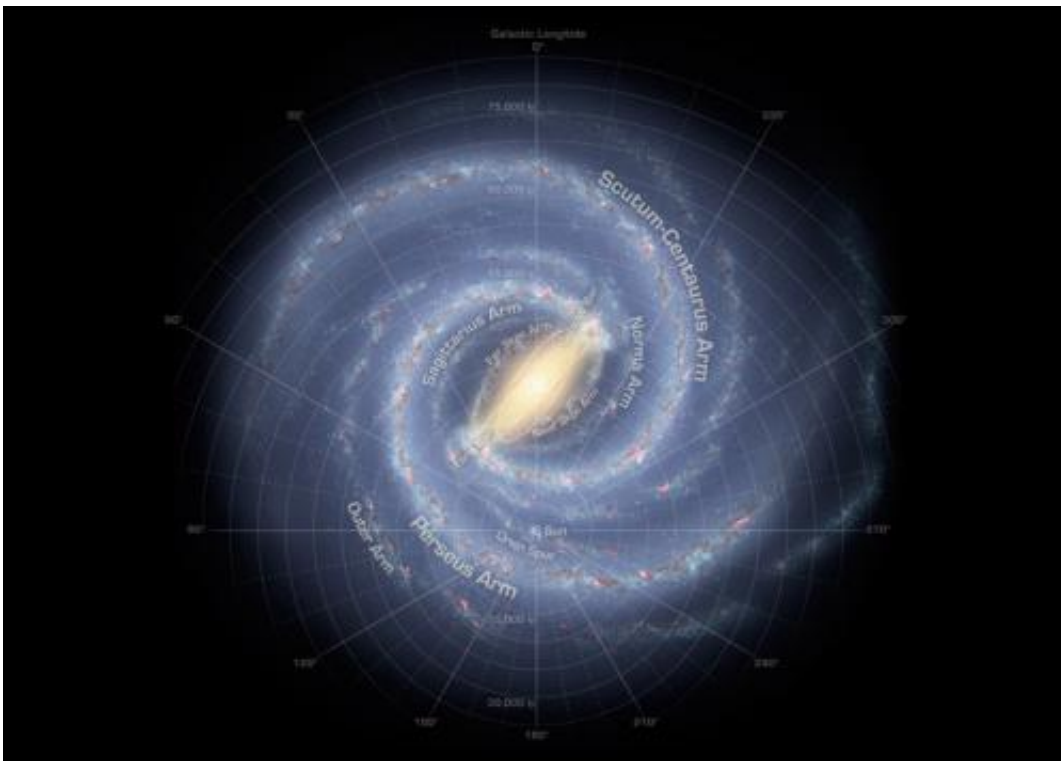
Sounds scary. According to New York University research scientist Gabe Perez-Giz, even though a quasar might be emitting more than 100 trillion times as much energy as the Sun, we're far enough away from the core of the Milky Way that we would receive very little of it – like, one hundredth of a percent of the intensity we get from the Sun.

Since the Milky Way is already a middle aged galaxy, its quasaring days are probably long over. However, there's an upcoming event that might cause it to flare up again. In about 4 billion years, Andromeda is going to cuddle with the Milky Way, disrupting the cores of both galaxies. During this colossal event, the supermassive [black holes](#) in our two galaxies will

interact, messing with the orbits of stars, planets, gas and dust.

Some will be thrown out into space, while others will be torn apart and fed to the black holes. And if enough material piles up, maybe our Milky Way will become a quasar after all. Which as I just mentioned, will be totally harmless to us. The galactic collision? Well that's another story.

It's likely our Milky Way already was a quasar, billions of years ago. And it might become one again billions of years from now. And that's interesting enough that I think we should stick around and watch it happen. How do you feel about the prospects for our Milky Way becoming a quasar? Are you a little nervous by an event that won't happen for another 4 billion years?



This annotated artist's conception illustrates our current understanding of the structure of the Milky Way galaxy. Credit: NASA

Source: [Universe Today](#)

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