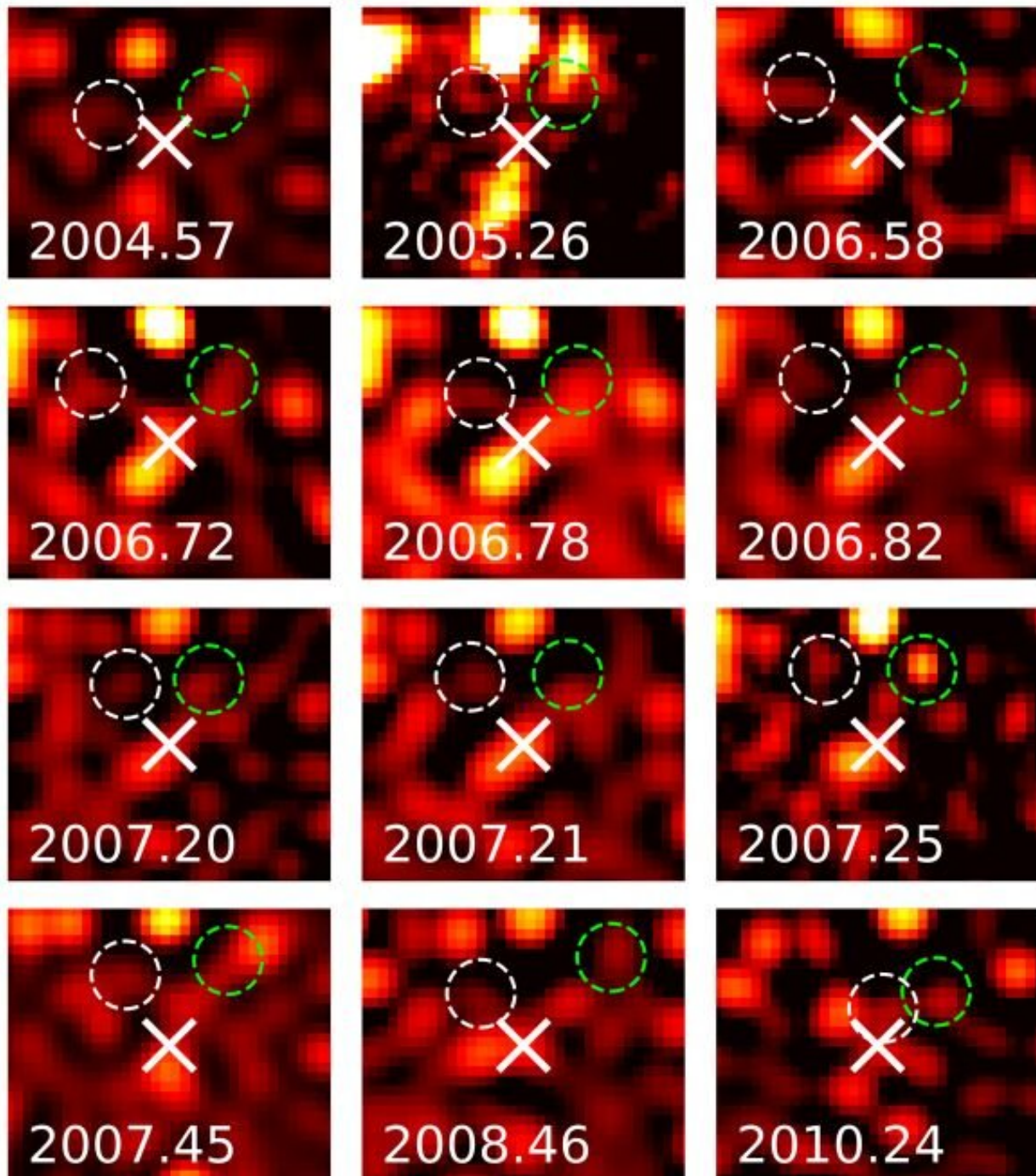


The fastest star ever observed

August 17 2020, by Bob Yirka



S4711 on its orbit around Sgr A*. Credit: arXiv:2008.04764 [astro-ph.GA]

A team of researchers has observed the fastest moving star ever recorded. In their paper published in *The Astrophysical Journal*, the group describes their observation and study of stars circling close to the black hole at the center of the Milky Way galaxy, and what they observed.

Space scientists have known for some [time](#) that there is a black hole situated near the center of the Milky Way galaxy (Sagittarius A*), and have theorized that there are stars that circle very close to it—known as squeezars, they are believed to orbit so closely to the black hole that they are accelerated to incredible speeds during parts of their orbits. In their work, the researchers have been studying a group of stars that exist close to the black hole, each starting with the letter "S" to indicate their closeness to Sagittarius A*.

Prior research had identified a star called S2 as likely existing the closest to Sagittarius A*, and at its closest to the black hole, was measured to be traveling at approximately 3% of the [speed](#) of light. Then last year, the researchers with this new effort found another star that circled more closely to the black hole and therefore traveled even faster, at approximately 6.7% the speed of light. Since that time, the team has continued studying the fast-moving stars and have found five more that appear to travel even faster: S4714, S4711, S4713 and S4715.

Of these, two stand out from the others—S4714 and S4711. S4711 is a blue star with an orbit shorter than S2, suggesting it might be the closest of all the stars to the black hole. And S4714 has proven to be the

speediest of them all—it has a longer orbit, but its [orbit](#) is elliptical, which means it is elongated, giving it time, perhaps, to pick up more speed as it moves closer to the black hole—up to 24,000 kilometers per second, or approximately 8% of the speed of light. The researchers suggest the [stars](#) are good squeezar candidates, particularly S4714 and S4711.

More information: Florian Peißker et al. S62 and S4711: Indications of a Population of Faint Fast-moving Stars inside the S2 Orbit—S4711 on a 7.6 yr Orbit around Sgr A*, *The Astrophysical Journal* (2020). [DOI: 10.3847/1538-4357/ab9c1c](#) , [arxiv.org/abs/2008.04764](#)

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