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Lone Stars Found in Comet-like Galactic Tail

Stars may also form outside galaxies

According to new observations conducted with the Chandra X-ray Space Observatory, stars are no longer restricted to form inside the accretion disk of matter of a particular galaxy, but could easily start a star formation process far away if provided with the required amount of material. Such a process is currently taking place in the ESO 137-001 galaxy, which presents a comet-like tail extending more than 200,000 light years into space - that's about twice the diameter of the Milky Way galaxy. The ESO 137-001 galaxy is slowly making its way towards the center of the galaxy cluster known as Abell 3627, process that usually spells disaster for the star formation in the respective galaxy. This does seem to be the case for this particular galaxy though, as the tail of matter has spawned the creation of a few million stars. Previously to the observations conducted by Chandra and assisted by the Southern Astrophysical Research in Chile, or SOAR for short, astronomers believed that it was impossible for stars to form in locations other than the interior of a galaxy. Michigan State University member, Megan Donahue, reveals that the comet-like tail of the galaxy is divided into 29 separate regions of ionized hydrogen molecular gas, which emits bright light in the optical domain of the electromagnetic spectrum. Also, the Chandra X-ray Observatory was successful in identifying two X-ray sources in the galactic tail, clear evidence that a star formation process is on the way, since young stars usually emit high amounts of X-ray light. Located 220 million light years away, the galaxy might have stars as young as 10 million years inside the comet-like tail feature, clearly isolated from the galaxy's main disk of matter. Astronomers argue that the tail of matter might have formed due to the pressure induced by hot intergalactic gas, as it is speeding towards the Abell 3627 galaxy cluster. By the time it would reach its final destination, the galaxy would most likely be stripped of all its gas, effectively inhibiting a future star-formation process. Further still, though currently galactic tails are extremely rare in the visible universe, in the past, galaxies with tails would have been very common, but they disappeared as more and more raw material was stripped from them through gravitational interaction or by intergalactic winds.