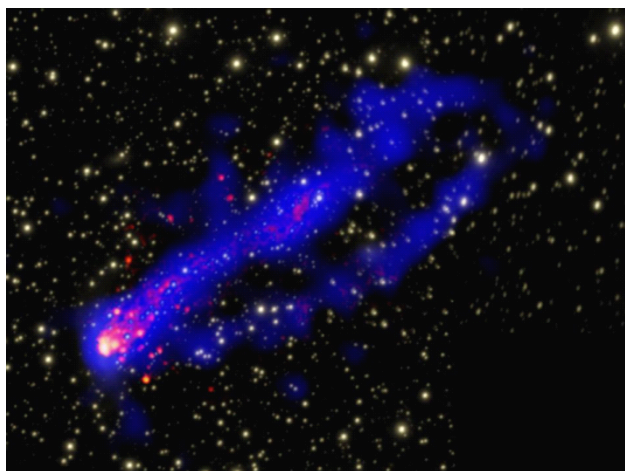


话说星系群的两条“尾巴”



Chandra X 光望远镜观测到一个星系后面拖着两个奇怪的 X 发射线尾巴。Chandra X 光望远镜拍摄的一张星系群 Abell 3627 的合成照片 X 光由蓝色显示，可见光部分为黄色和一些由氢元素放出的光（天文学家认为那是 'H-alpha'）是红色的。可见光部分和 'H-alpha' 的数据由在智利的南方天文探索望远镜获得。

在尾部前的星系是 ESO 137-001。两条明亮的尾巴曾经被观测到过，延伸了将近 26 万光年。值得注意的是，发光微弱的尾巴让科学家十分惊讶。

X 光尾巴是由从向 Abell 3627 星系中心运动的热气体（100 万度）中被剥离下来的来自 ESO 137-001 的冷气体（大约为绝对零度）所产生。天文学家通过 Chandra 观察到实质上是冷气

体蒸发所致，斯皮策天文望远镜发现尾部气体发热的温度大约 100 到 1000 开尔文。

星系群实质上是由成百上千的星系由重力组成在一起的，其中蕴含着大量热气体。两个交叉的尾巴可能在系统中已经形成因为气体已经从 ESO 137-001 的两个悬臂上被剥离。被剥离的气体对星系的进化产生着重要的影响，去除星系中的冷气体，将要停止星系中新恒星的形成，同时还改变着内部悬臂的出现和膨胀，因为这都是恒星形成的结果。

Galaxy Cluster Has Two 'Tails' to Tell

Two spectacular tails of X-ray emission have been seen trailing behind a galaxy using the Chandra X-ray Observatory. A composite image of the galaxy cluster Abell 3627 shows X-rays from Chandra in blue, optical emission in yellow and emission from hydrogen light -- known to astronomers as 'H-alpha' -- in red. The optical and H-alpha data were obtained with the Southern Astrophysical Research (SOAR) Telescope in Chile.

At the front of the tail is the galaxy ESO 137-001. The brighter of the two tails has been seen before and extends for about 260,000 light years. The detection of the second, fainter tail, however, was a surprise to the scientists.

The X-ray tails were created when cool gas from ESO 137-001 (with a temperature of about ten degrees above absolute zero) was stripped by hot gas (about 100 million degrees) as it travels towards the center of the galaxy cluster Abell 3627. What astronomers observe with Chandra is essentially the evaporation of the cold gas, which glows at a temperature of about 10 million degrees. Evidence of gas with temperatures between 100 and 1,000 degrees Kelvin in the tail was also found with the Spitzer Space Telescope.

Galaxy clusters are collections of hundreds or even thousands of galaxies held together by gravity that are enveloped in hot gas. The two-pronged tail in this system may have formed because gas has been stripped from the two major spiral arms in ESO 137-001. The stripping of gas is thought to have a significant effect on galaxy evolution, removing cold gas from the galaxy, shutting down the formation of new stars in the galaxy, and changing the appearance of inner spiral arms and bulges because of the effects of star formation.