## Saturday, January 26, 2019

## A outdo Black Hole.

**In physics, Space-Time is a mathematical representation of Space and Time as two inseparable notions that influence each other.**

**Part of my first abstract for the upcoming conference in March.**

**In astrophysics, a Black Hole is a celestial object so compact that the intensity of its gravitational field prevents any form of matter or radiation from escaping it.**

**Such objects can neither emit nor diffuse light and are therefore black, which in Astronomy amounts to saying that they are optically invisible.**

**However, several techniques of indirect observation in different wavelengths have been developed and allow to study the phenomena they induce.**

**In particular, the material snapped-up by a Black Hole is heated to considerable temperatures before being engulfed and emits a significant amount of X-rays.**

**Since gravitation is the only effect that can emerge from a Black Hole, a near-direct observation of Black Holes could be detailed in February 2016 through the first direct observation of gravitational waves.**

**In the context of general relativity, a black hole is defined as a gravitational singularity occulted by an absolute horizon called horizon of events.**

**According to quantum physics, a Black Hole is likely to evaporate by the emission of black body radiation called Hawking radiation.**

**A Black Hole should not be confused with a White Hole or a Wormhole.**

**The Earth is located in the Solar system which is itself located in a galaxy: the Milky Way.**

**The Milky Way is a set of hundreds of billions of stars, gas and dust.**

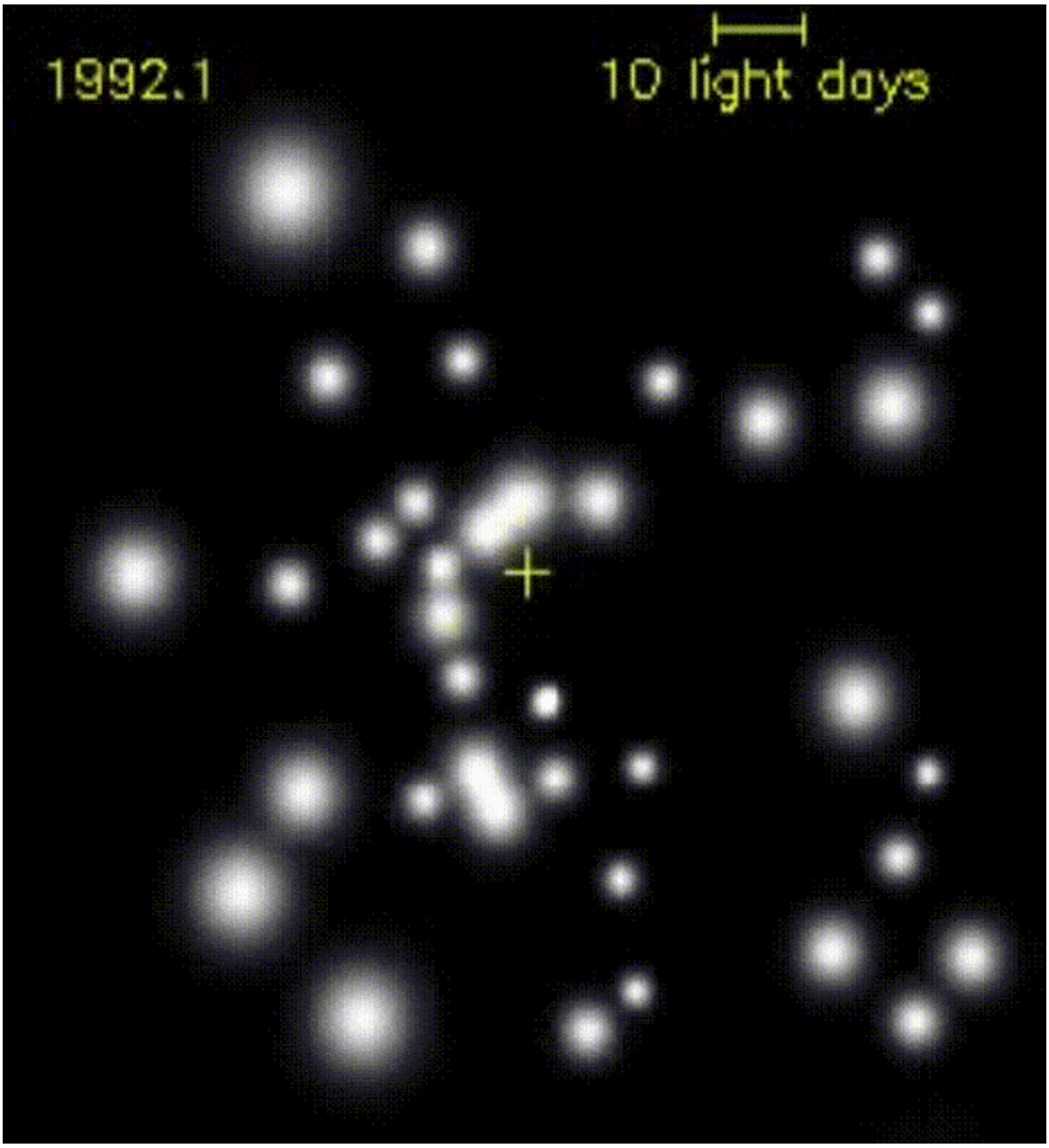
**Since compact objects are created by the disappearance of stars (except for supermassive black holes) they are found where there is a large concentration of stars.**

**For our galaxy, we will mainly find them in the galactic plane and the galactic bulb. Supermassive black holes are located in the center of large galaxies.**

**They can also be spotted because they change the movement of objects around them because of gravitation.**

**Below, a film showing the orbits of several stars revolving around the supermassive black hole in our galaxy.**

**By knowing the orbits of the stars, one can calculate the mass of the central black hole which weighs a few million times the mass of the Sun.**




Media animated by clicking on the Time, at the end.

**Another phenomenon that makes it possible to detect compact objects is that of the gravitational lens.**

**According to General Relativity, a mass deflects the light rays that pass-by.**

**If two objects A (the nearest) and B (the furthest) are in the same line of sight, the light coming from B will be diverted by A:**

- **Those who pass under A will be deflected upwards**

- **Those who pass on B will be deflected down**

**In addition, A concentrates the rays of B giving a brighter image of B.**

**For example, if B is a star and its brightness increases then returns to its initial state, we can deduce the possible passage of a compact object between the observer and the star.**

**The duration and the amplitude of the effect make it possible to determine the mass, the velocity and the distance of the object A.**

**Compact objects emit light in different wavelengths.**

**That's why it's important to study them in all areas.**

**For example, we can observe gamma-ray bursts.**

**Several international and European missions have sent or will send satellites capable of detecting gamma-ray bursts and subsequently analyzing them on the ground (for example, the NASA Swift satellite launched in 2004 or the Franco-Chinese SVOM mission in 2020)**

**In addition, neutron stars are born with a strong magnetic field much stronger than that which protects the Earth.**

**They emit light beams at the magnetic poles.**

**If these beams are oriented towards the Earth, the neutron stars are called pulsars.**

**Indeed, because of the conservation of the angular momentum, they turn very quickly on themselves**
**(from a few milliseconds to a few seconds)**

**Two beams of light sweep the sky.**

**When the Earth passes into the swept area, it receives a light intensity.**

**These intensities arrive in a very regular way, so regular that we first thought that they were extraterrestrials.**

**I continue when possible, catch up in my classes with the Observatory and more around for the research.**

**I had to talk about some things with my tutor and he reminded me to hang on because everyone is not admitted to this course but he has understood the unease that I received  from people disrespectful.**

**Up soon in the heart of Le quartier Latin, known for being the stronghold of French and worlwide students  as well as artists.**

**During one month I will be on the organization of my departure towards England where I will reside for an immersion course in English necessary for the continuation of my program before March and then for my internship in New York.**

**I will start the planned course with the CogitoZ center in France and then in London.**

**It's still complicated because I'm not quite in a space that suits me, my things are still packed, my internships (many) are not yet financially finalized and my travels and my future residence are only in progress although I am in contact with a real estate agent who does England and USA rentals.**

**My problem is: that since I momentarily a change of investment in my projects, I had very difficult for two months to finance my course and lodge me while for 5 years it was easier at these levels so that's why in Paris I followed a program of evaluation of my competences, I drew my projects concretely thanks to its evaluations and I now have the need to integrate the CogitoZ-center in order to continue the formal steps of my needs in the specific areas such as I just trying to surpass it.**

Posted by Veronica IN DREAM at 11:57 AM