

Conjectured (tinwyt)

Considering slow gravitational waves to replace the concept of dark matter.

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Abstract

Current cosmological models lack complete machinery and resort to mechanisms. For example through some undefined mechanism energy is distorting spacetime and through some mechanism this spacetime interacts with the energy to change its motion. Describing spacetime behaviour by means of an equation does not provide a complete machinery. In this document machinery is conjectured for the rotational behaviour of galaxies (see figure [Figure 2](#) on page [4](#) and [Figure 3](#) on page [5](#)). This machinery is an alternative for all the types of dark matter that are conjectured in this era of physics research. The machinery is the same machinery that is conjectured in [1], [2] and [3] and is just elastic space containing waves of different wavelengths. In physics literature gravitational waves are considered to travel with the speed of light. The machinery of elastic space suggests the possibility of space-waves traveling with speeds lower than the maximum speed of propagation. It would be natural to consider using the words gravitational wave for any space-waves that participate in gravitational effects, regardless of their propagation speed. With this adaptation the machinery is suited as a candidate for explaining the phenomena that are currently often explained by a mysterious form of energy called dark matter. One could say that galaxies are surfing the waves (see figure [Figure 1](#) on page [3](#)) and their origin and growth are guided by the particular wave that can gravitationally collect and hold the energy (of a totally different scale) that is available in its vicinity. The space-waves we are talking about have wavelength of the order of several times the diameter of the surfing galaxy.

1 Conjectured

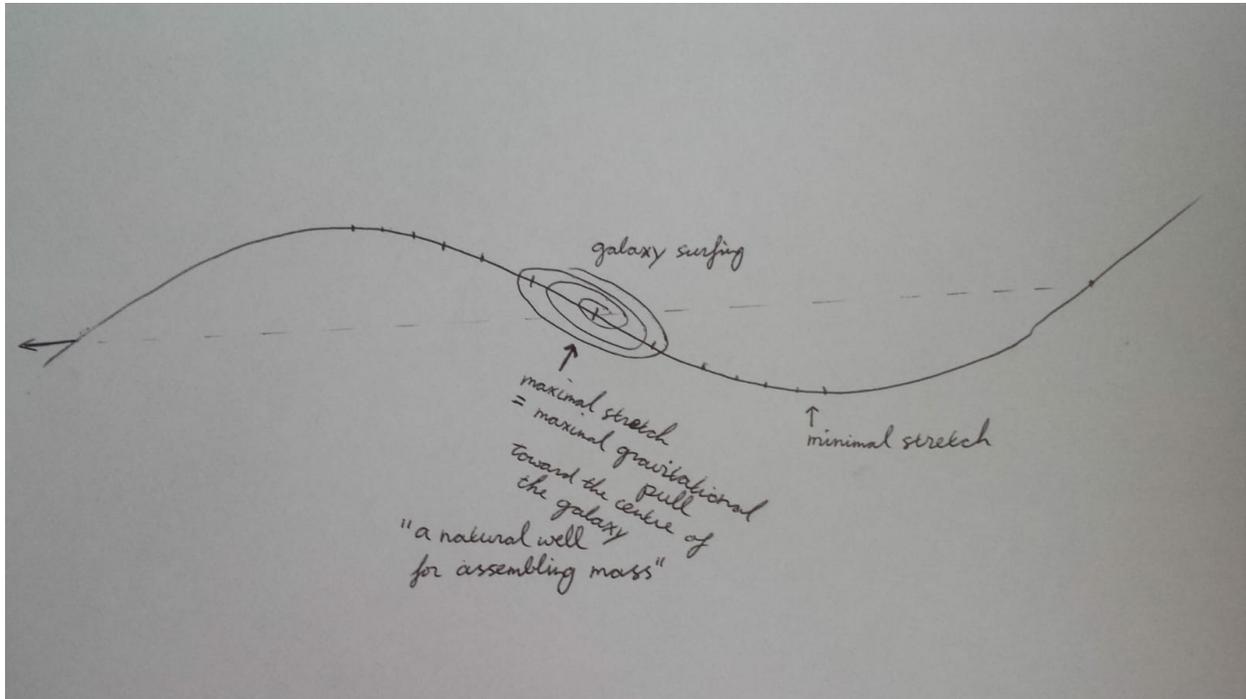


Figure 1: A galaxy is surfing a wave. Other waves with other wavelength can be superimposed upon this carrier-wave to produce local wobbles in the tangential speeds of the different masses in the galaxy. The wavy line is a representation of what is a three dimensional (combination of transverse and) longitudinal space wave, much like a sound pressure wave. Horizontally distance is shown. Vertically longitudinal stretch of space is depicted, generating a gravitational force

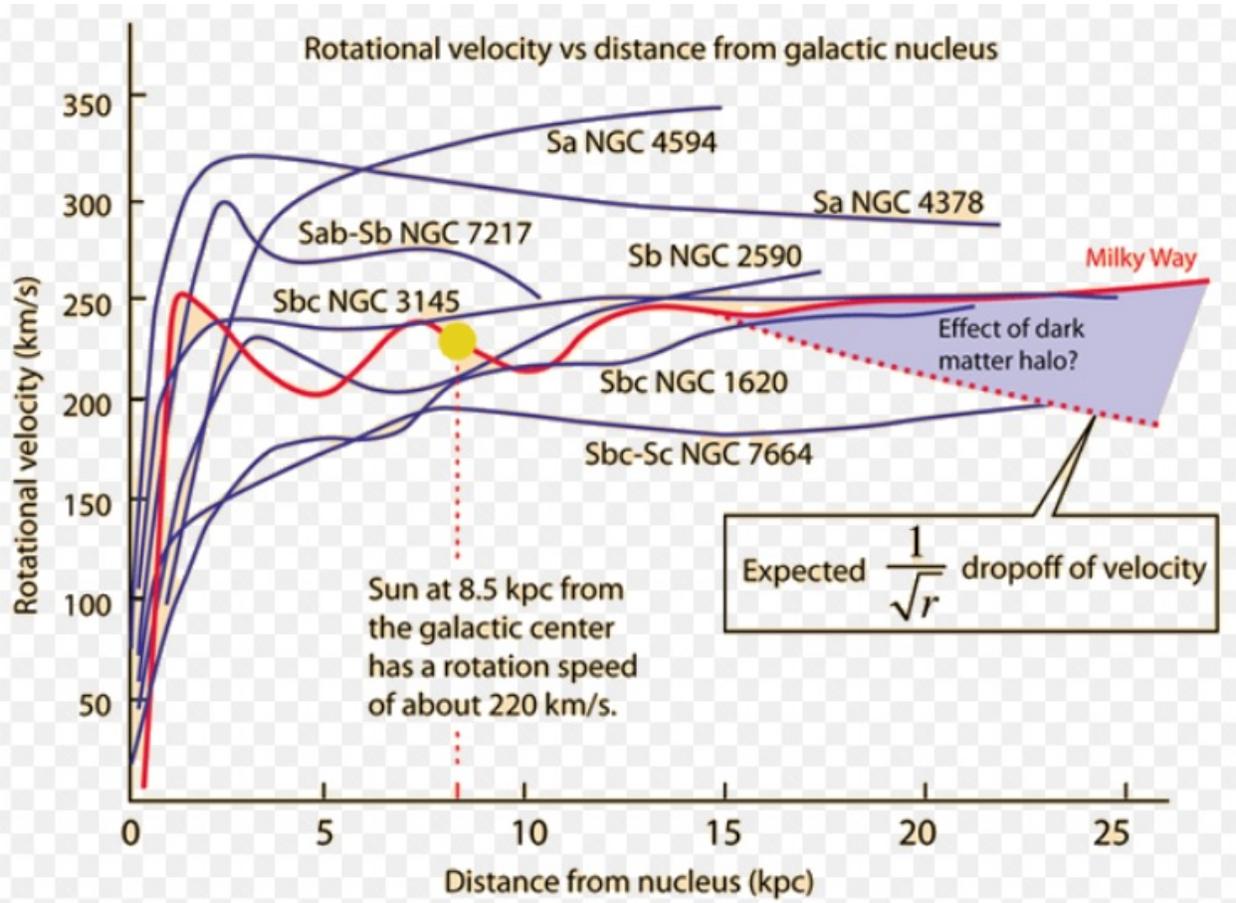


Figure 2: Speed distribution of matter in galaxies. Picture from the internet.

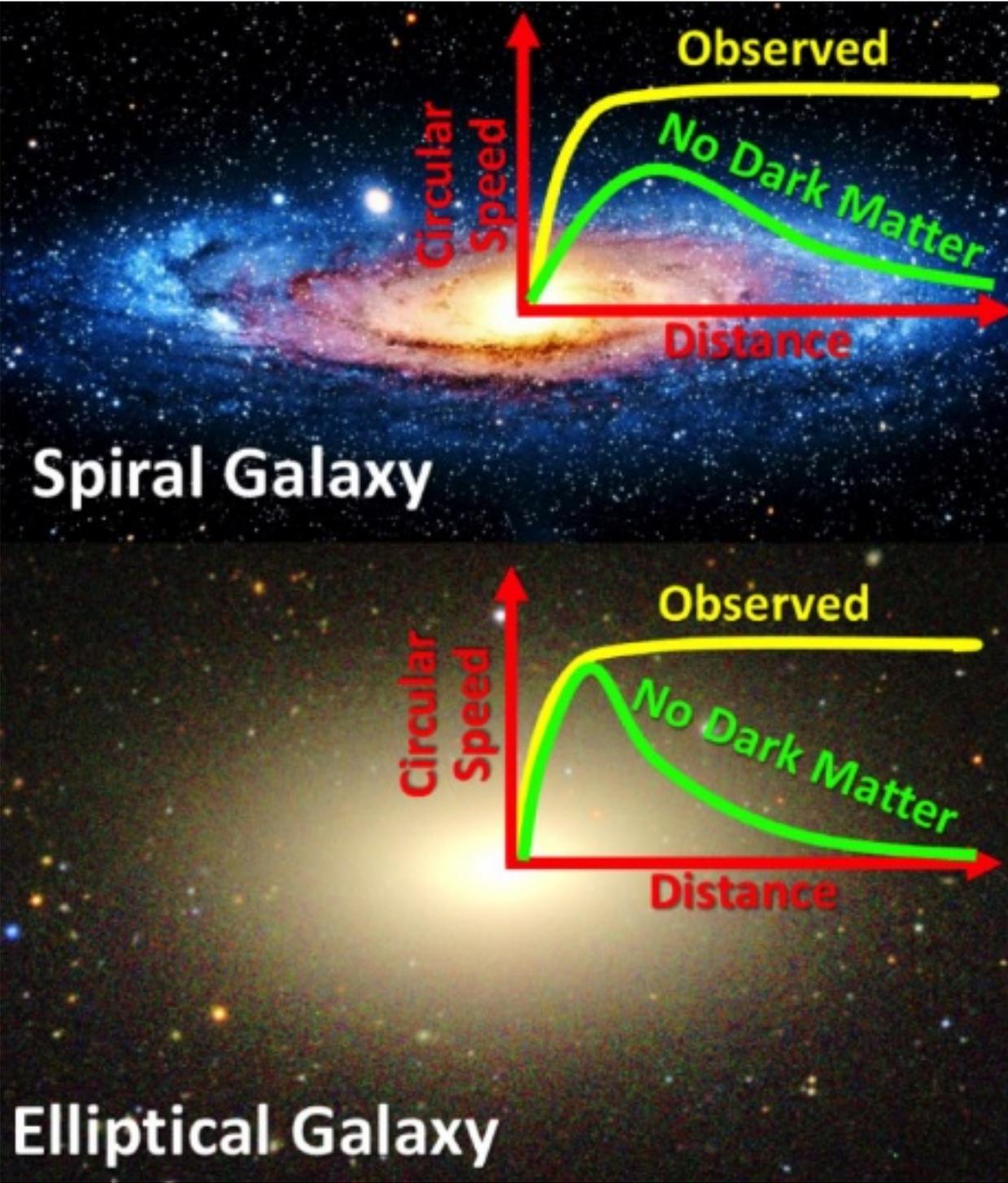


Figure 3: Another view. Picture from the internet.

References

- [1] The properties of space, Bas van Stekelenburg, 2014, destekel.nl
- [2] Can Artificial Intelligence bring life in space, Bas van Stekelenburg, 2018, destekel.nl
- [3] Can gravitational waves be longitudinal and slow?, Bas van Stekelenburg, 2019, destekel.nl