1.9.5 Multiple images The strong gravitational field of black hole deflects the light. The light rays passing near a black hole with the impact parameter close to the critical one have a large bendingangle.As result, the black hole will create more than one image of a distant object. This strong-field lensing effect can be used to identify and study black holes. The quantitative study of this and similar effects requires the development of the ray-tracing methods in the gravitational field of black hole. The ray-tracing and its applications are discussed in Chapter 7.Rotating black holes as gravitational lenses are discussed in Section 8.6. 1.9.6 Star disruption The gas accretion onto a black hole and black hole mergers are two mechanisms of the black hole mass growing that are often discussed in the literature. There is another interesting process that results in the mass increase of the central black hole. This is a stellar capture and stellar disruption. In the Newtonian theory a condition of tidal disruption of a star of mass m and radius b passing at a distance R from the mass M follows from the relation GMb R3 ~ Gm b2 .

The distortion may become so high that the star is disrupted. The matter of the star falls into the black hole. surface of the star of size b produced by its mass m. This relation shows that ifastar in its motion comes close to the black hole of mass M than the distance R = M m 1/3 b,
This problem can be solved as follows. First, one finds a trajectory of a star in the gravitational field of the black hole, by integrating the geodesic equation in the corresponding metric.Secondly, one solves the equation of the parallel transport of a frame along such a geodesic and calculates the component of the curvature tensor in this frame.

A Graphical representation of quantum holes are in the next pages, this illustrates new rules and new dimensions according with the laws of physics and mathematical higher dimensions and theory string/ the correlation is solid/ there are multiple or different kind of gravity projections in a given galaxy where Quantum algorithms are placed in small chunks of circuits made by nature of the laws of physics. To be correct, we do not know where we are because special relativity only works under specific conditions, but another kind of special quantum gravities are possible in dimensional space-time that we are not seeing because of the problematic 6D 5D or more dimensions. To solve the visualization I give you a taste of these kind of dimensions and also they are valid or can be in a system logic assembler with points of quantum correction circuits and to manipulate in a nano scales de new kind of gravity molecules that are in a given galaxy (Andromeda)

Maser effect Astrophysical masers are well-known phenomena. After their first discovery in 1965, they were found in comets, planetary atmospheres, star-forming regions, supernova remnants and in some extragalactic sources. Maser radiation is similar to the laser. It is generated when a coherent beam of electromagnetic radiation passes through media with a pumped population inversion.Such a beam induces transitions from upper occupied energy levels to a lower-energy one and gains in the energy of this process. There are many types of molecules 40

Black Holes: Big Picture that can produce the maser affecting the astrophysical environments. Observations confirm the existence of water vapor and other molecules that can produce stimulated microwave emission in the accretion disks around supermassive black holes. Maser radiation from quasars is used to establish parameters of the central black hole engine.For example, the observation of the maser line emission allows one to test the mass of the black hole with a very high accuracy. The spectral lines emitted by masers are very bright and narrow. Theselinesareobservedas Broadened by the Doppler effect because of the Keplerian of the matter of the disk, emitting and amplifying these lines. The broad spectral lines are used probes of this motion and give additional information about the black hole mass

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Nanotechnology is an emerging field of quantum circuits where we can investigate the algorithms to better understand the galaxies around us, but gravity, time are dimensional otherwise, modern quantum mechanics or algorithms don't work as expected. The circuitry validation is a must in the research of a solid understanding of the scales in our galaxy and Andromeda.

Supermassive B