Dzhanibekov Effect

According to 'MATTER (Re-examined)'

by

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Abstract

A simple and logical description on "Dzhanibekov Effect".

Entire space, outside the most basic 3D matter-particles, is filled entirely by an all-encompassing universal medium. It is a combination of latticework-structures by quanta of matter in all possible planes. Universal medium.

Due to its structure, universal medium is inherently under compression. A 3D matter-particle, in the universal medium, experiences compression from universal medium. This property of universal medium is gravitation. Magnitude of gravitation corresponds to extent of universal medium that exerts the pressure. Extent of universal medium between two 3D matter-particles is always less than extents of universal medium on their outer sides. Hence higher gravitational actions on outer sides tend to move the 3D matter-particles towards each other. This tendency is understood as gravitational attraction or gravity. Gravitational attraction (gravity) is the resultant (relatively a minor by-product) of separate gravitational actions on two 3D matter-particles by universal medium. Logic of 'push gravity' .

Corpuscles of radiation (photons) are the most basic 3D matter-particles. They are created by gravitational actions of universal medium from free quanta of matter available within gaps in its latticework structures. Universal medium gathers free quanta of matter, compresses and shapes them into disc-shaped 3D matter-cores of photons, which spin at spin speed proportional to their 3D matter-content and moves at the highest possible (hence constant) linear speed with respect to surrounding universal medium. Movements of 3D matter-cores of photons are accomplished by transfer of structural distortions formed in surrounding universal medium, which have many similarities with EM waves in each plane. 3D matter-core and related structural distortions in surrounding universal medium, together, form a photon. 3D matter-core provides its particle nature and structural distortions in surrounding universal medium provide its wave nature in each plane. See: Nature of light. Complimentary high-frequency photons, in different combinations, form all other superior 3D matter-particles and macro bodies. Hierarchy of matter-particles.

For analytical purposes, gravitational attraction on whole of a macro body is assumed to act through its imaginary center of gravity. However, gravitational attraction between two macro bodies is the average sum of independent gravitational attractions between each of constituent photons on one body and each of the constituent photons in other body, at any instant. Therefore, magnitude of gravitational attraction at any point in a macro body depends on distribution of 3D matter-content within the macro body.

Universal medium is a self-stabilizing structure and is the originator of all actions in nature. It is its inherent nature to transfer structural distortions from higher distortion-density region to lower distortion-density region. During such transfer, 3D matter-particles within the region of moving structural distortions are also carried along with the moving distortions. Displacements of constituent photons of a macro body results in movement of the macro body in space. Mechanism of motion.

Instantaneous direction of motion of an object, moving in circular path, is deflected outwards from the tangent to the path. This creates an appearance that the object tends to move outward from center of its circular path. This tendency is currently attributed to an imaginary centrifugal force. In order to maintain circular path of the object, an action by a real centripetal force on the object is essential. Motion in circular path.

In case of a rotating body, required centripetal force is provided by integrity of the body. In case of a body that is orbiting about a much larger central body, centripetal force (required to maintain its curved path about the central body) is provided by gravitational attraction between these bodies.

Let us consider an orbiting body, whose 3D matter-content is distributed symmetrically about its geometrical center. Action of gravitational attraction towards the central body is through center of gravity of the body that coincides with its geometrical center. If the body itself is rotating about an axis along its linear motion, outward deflection of its linear path is neutralized by displacement due to gravitational attraction between central body and the orbiting body and the orbiting body continues to maintain curvature of its orbital path.

Consider another orbiting body, whose 3D matter-content is distributed unevenly along the direction of its linear motion. Magnitudes of gravitational attraction towards the central body at every point along its spin axis vary in proportion to 3D matter-content about that point. If this body is rotating about an axis in the direction of its linear motion, heavier end of the body has higher magnitude of gravitational attraction towards the central body. Uneven efforts, acting perpendicular to spin axis of a rotation body, invoke gyroscopic precession and results in the body turning about an axis perpendicular to its spin axis. Such a body would flip itself (in the same direction and in the same plane) as it moves along its curved path about the central body. This phenomenon gives rise to 'Dzhanibekov Effect', which is mathematically explained by the 'Tennis Racquet Theorem' in contemporary physics.

A free gyroscope, on or near another large macro body and asymmetrically loaded along its spinning axis (in horizondal plane), will continue to precess about an axis passing (vertically) through its centre of mass and perpendicular to spinning axis. Action of resultant gravitational attractions between basic 3D matter particles in both the gyroscope and the large macro body is through a point on its spin axis away from center of mass. Similar effect appearing on a spinning body in gravity-less environment and moving in linear direction accross its plane of rotation appears as 'Dzhanibekov Effect'.

References:

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[4] Nainan K. Varghese, *Nature of light*
[5] Nainan K. Varghese, *Hierarchy of matter-particles*
[6] Nainan K. Varghese, *Mechanism of motion.*
[7] Nainan K. Varghese, *Motion in circular path.*

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