Gravity & The Spinning Ball Experiment

by

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(17 March 1977)

Introduction

The spinning ball experiment consists of the observation of the interaction of gravitational and inertia forces on a rotating material object.

In the interaction of material force on a rotating physical object, four experiments are possible:

1) Inertial forces acting on non-rotating material objects in field-free space;

2) Inertial forces acting on rotating material objects in field-free space;

3) Inertial forces acting on non-rotating material objects in a gravitational field;

4) Inertial forces acting on rotating material objects in a gravitational field.

Discussion of the Experiments

In experiments (1) and (2), we would expect the normal inertial forces summarized by Newton□s Laws of mechanical motion. In experiment (3), there is reason to believe there will be (supported by experimental evidence), a slight enhancement of inertia by the gravitational field. The cases of experiments (2) and (4) have not been adequately treated in the literature.

Behavior of Rotating Material Objects

Certain theoretical considerations justified the belief by the author that the mechanical properties of objects would be altered by rotation and that this would be the basis of the gravitational interaction. A series of experiments has been carried out supporting this basis of action. The report of some of these experiments has been appended to this theoretical dissertation. The results will be presented here.

1) Experimental evidence supports the fact that a rapidly rotating material object will gain in inertia.

2) The form of the gravitational interaction is that the additional inertia property, od, of rapidly rotating real material objects, represents an additional repository for the extraction and supplying of work from or to a gravitational field. This means a rotating mass will fall more rapidly (with greater acceleration) than a corresponding no-rotating object under the influence of a gravitational field.

Form of the Gravitational Interaction

The complete description of physical phenomena depends on the result of many experiments. Together with the behavior of the spinning ball experiments, there is another series -- force machine pendulum experiments -- which have been reported elsewhere. Basically the phenomena reported here are summarized by these results:

1) A force machine pendulum, i.e., a pendulum composed of two identical flywheels contra-rotating, for the cancellation of gyroscopic forces, swings with a period slightly increased over that of the non-energized force machine. This indicates a net increase in the inertia of the rotating system.

2) The swinging of the energized pendulum is non-sinusoidal, with a foreshortening (flattening) of the peaks of the swings.

3) Mechanical energy of motion, stored in the created inertial property, od, appears as an inertial field. This inertial field has the property of conferring inertia on surrounding material objects -- and a reduction in the frequency of oscillating electrical circuits placed in the vicinity of the energized machine.

When we examine the behavior of the spinning ball in relation to the above phenomena we can extract the following behavior.
When the spinning ball is thrown upwards it leaves the cup wit some vertical velocity v, In order to attain this velocity the spinning ball had been accelerated vertically prior to the time of leaving the cup. Acceleration of a rotating material object requires greater energy than a corresponding non-rotating one since some energy is supplied to the od field. When the spinning object leaves the cup, the kinetic energy of motion is divided between the 1/2mv2 of the "real" mass of the object, and the energy stored in the created inertial property, od. The sum of these two energies allows to attainment of a greater height reached, in the doing of work against the gravitational field, in comparison to a non-spinning object moving with the same initial vertical velocity.

When we examine the behavior of the falling non-spinning object versus the spinning object, we notice the spinning object falling faster (with greater acceleration).

We infer that the behavior of the falling non-spinning object, falling in accord with Newton□s Laws, is a special case of the motion of objects in general. The more general case, involving rotation, is obscured by the gravitational interaction.

We would expect, if we could increase the inertia of an object (through rotation of by some other means), that the object would fall more slowly in a gravitational field. Let us consider however that while a conferred inertial property, od, would reduce the acceleration of a given body acted on by a given force in outer space, in the presence of a gravitational field, the conferred inertial property would be an additional mechanical "dimension" for the extraction of energy from the gravitational field in falling. Conversely, enough energy could be delivered from this "dimension" to cancel, or overcome, the mechanical energy extracted from an object raised in a gravitational field.

On this basis we may write:

For the spinning ball: mgh = ½ mov2 + Kodv

For the spinning ball falling: ½ mov2 = ½ mov2 + Kodv

In a strict sense, the precise application of Newton□s Laws would have to be restricted to non-rotating mechanical objects in field-free space. In a gravitational field, the possibility of extraction of greater energy by a new mechanical dimension opens the possibility of an anti-gravitational interaction. In a rotating force machine, od energy can be supplied:

Driven force machine: mgh = ½ mov2 + Kodw2

Where, w is the angular velocity of the force machine drive axis.

Here is the possibility of the conversion of rotational energy to work done against the gravitational field. What is not determined at this point is the necessary increment of energy required to neutralize the weight of a given object, viz., it might take 1.1 foot pounds of work to lift a one pound object one foot. The incremental field necessary to establish neutral weight, or the hovering condition, represents the inefficiency or lack of perfection of a real force machine. The important fact is the establishment of the od field as the mechanism for a mechanical interaction with the gravitational field, in addition to the mechanical interaction expressed as Newton□s Laws of the falling non-spinning mechanical body.

Interpretation of Physical Laws

The fact that Newton□s Laws do not distinguish between the spinning and the non-rotating object represents the state of mechanical knowledge at the time. But because Newton did not distinguish between rotation and non-rotation, Einstein did not distinguish between the so-called inert and "gravitational mass". The fact that rotation affects the mechanical properties of objects paces Newton□s Laws as a special case and invalidates a geometrical interpretation of space.

Many questions have been asked about the nature of the gravitational-rotational interaction and its theoretical prediction. Basically the theory can be looked at in the following way. If we consider a force, such as that engendered by the action of the gravitational field on a non-rotating real object, we find we can make a measurement of that force on what we know as a scale. If we examine the reading on that scale, say one pound, we can conduct our examinations to that degree of accuracy where we can reach uncertainty, i.e., 1.000000000??? It is not clear at that point whether the uncertainties in the measurement are due to properties of the experiment, or that which is being experimented upon. The level of causes and effects, uncertainty.

If we consider the results of any experiment we find this phenomenon.

If a real material object is rotated, it is found that within the body of the object are manifested the centripetal forces of rotation. If we consider a measurement of these forces we could find the same defect, that is, the measurement could be made precise enough to reach the noise level, i.e., causes and effects, and it would not be discernable whether the fluctuations were being caused by the experimenter or that which is being experimented upon. This level is the level of defect of forces and represents the connection between rotation and gravitation. Once there is established a connection, the transfer of energy follows a controllable orientation, viz: the spinning balls falls more rapidly because such an object can extract more energy from a gravitational interaction than can a normal one, and as well, the storage of energy in a force machine as an od field results in direct application of this energy to do work against the gravitational field and provide lifting force.

The concept of defect (of a field or force) was originally elicited epistemologically, forming the basis of the author□s theory of Simularity, a theory of Reality based on the properties of measurement.

What is considered is the real properties of the level of causes and effects. What this represents physically as a form of inertia and a connection between rotation and gravitation. The "connectivity" of defect and the other real properties of inertia fields is better left to discussions to begin with the data presented herein. The theory s more properly left to the serious students of these ideas. As apprehension of the theory of Simularity necessarily entails the dropping of certain restrictions on the mind of the experimenter.

What can be said is this:

In the further refinement of the art of physical conceptions, there are certain points reached, wherein it is in the proper ordering of things to drop certain concepts when they have reached the end of the usefulness. In the search for the gravitational interaction, we have long been hampered by the erroneous equation of inert and gravitational masses. We could better say: force is an element in the performance of two separate experiments -- the force of gravitational attraction of a test mass, and, the force necessary to cause a test mass to accelerate at the same rate at which it falls.

Now that we have distinguished between the inert and gravitational mass by means of rotation, there are two principles involved:

1) The connection between all experiments through the mechanism of defect.

2) The resolution or distinction of experiments, one from another, on the basis of differing procedures. There is no basis to believe that two experiments involving a common element (ingredient) have any basis to be comparable in their results, viz., the particle and wave hypothesis of light. It is also reasonable to suggest that we not apply mundane concepts of "size", "weight", "mass", "spin, "sign", etc., without precise explicit reference to the experiment being performed. Since many of the ideas we have about "matter" are conditioned by the models we construct, we may have reached a point of development where the "model" as a concept may have to be discarded.

It is not inconceivable to this author, to regard physics as a collection of experiments, some of which may involve one or more common elements. No one experiment ever gives the results of another separate and distinct experiment. Thusly stated:

A different experiment gives a different result.

We can see that to take the common element of two distinct experiments, that is to take force, and then take the results of the experiments and then equate -- having found them "equivalent" -- such a dilemma can only resolve itself in a curvature of geometrical representation of space. In final analysis, the invariance of physical laws is replaced as a concept by defect, a real property elicited by the spinning ball experiments, and which now replaces the invariance of physical laws as the unifying concept of all experiments.

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