

## More on the Cause of Gravitational Acceleration

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Further to my idea about the cause of gravity:

Imagine a particle held stationary in a gravitational field by an upward force (perhaps a table). The particle is a standing wave and the waves propagate upwards and downwards over time to form the standing wave. The waves at the bottom of the particle travel slightly slower than the waves on the top, so in order for the standing wave to remain a continuous waveform, the waves at the bottom must bunch up (get closer together) so that the same number of wave crests travel from top to bottom as from bottom to top.

The strength of the electromagnetic forces that hold the particle stationary (between the table top and the particle) depend on the distance (i.e. geometry) of the waves, so if they are bunched up closer, there will be a stronger force. Thus an equilibrium position is attained, where the electromagnetic forces balance & the continuity of the waves (from a standing wave point of view) is maintained across the differing gravitational potential.

If the table is suddenly removed, the first thing that happens is that the opposing electromagnetic force is removed, so the bunched up waves at the bottom of the particle spread out to restore the particle's correct geometry. Once this occurs, however, the number of wave-crests propagating from the bottom of the particle to the top decreases. This is because the distance between the wave-crests is the same at the top as at the bottom, but the waves at the bottom are traveling more slowly, so that when they propagate to the top, they spread out to form a lower frequency wave. Similarly the waves from the top arrive at the bottom as a higher frequency wave.

Thus a moment after the table is removed, the particle becomes a standing wave comprised of a higher frequency down wave and lower frequency up wave. This is the configuration for a particle in motion, and the standing wave's nodes will have a definite downward velocity.

As the waves continue to travel slower at the bottom of the particle than at the top & the particle's geometry is maintained (ignoring for the moment the length contraction that occurs due to the particle being in motion) the same process will continue to occur from one moment to the next, causing the particle to accelerate downwards.

So it appears that it is the particle's internal forces that attempt to retain its spherical geometry combined with the slowing of waves in higher gravitational potential that causes the acceleration due to gravity.

### **Addendum**

Further to the explanation above: the force that retains the spherical geometry of individual particles (standing waves) is better thought of as being due to the momentum of the sub-quantum waves that comprise the standing waves rather than electromagnetic forces. Thus the same explanation works for charged and uncharged particles. The new concept is that as the downward waves slow down and bunch up as they move into a region of higher gravitational potential, their amplitude increases, and thus so does the momentum they carry. This increased momentum impacts on the standing waves nodes, pushing them further downwards, and in the process causing the reflected wave (travelling upwards) to be Doppler shifted to a slightly lower frequency. This process causes the difference in frequency between the upward and downward waves - thus resulting in a moving (& accelerating) standing wave.