The entropy paradox

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Abstract

Based on Einstein's general relativity theory, increase in mass causes time dilation. In this paper we introduce 2 identical closed systems A&B. Each system contains masses M&m where $M \gg m$ .Each system can be in one of 2 stable steady states modes, mode 1 in which m is far from M held in its position by a slider (Fig. 1) and mode 2 in which m has travelled towards M because of its gravitational pull, until they both collided and became a unified mass (fig. 3). At mode 1 the system is potential energy dominated and in mode 2 the system has transferred its potential energy first to kinetic energy and finally after the collision to heat (radiation) energy which was radiated immediately out of the system until reaching a stable steady state mode. Switching between the 2 modes is possible through the slider (Fig. 3) which by sliding aside enables mass m to be pulled by gravity towards mass M.

In system A the sequence is: mode 1 for t_{a1} seconds and mode 2 for t_{a2} seconds. In system B the sequence is: mode 1 for t_{b1} seconds and mode 2 for t_{b2} seconds. Where $t_{a1} > t_{b1}$, $t_{a2} < t_{b2}$, $T = t_{a1} + t_{a2} = t_{b1} + t_{b2}$ .Although in both systems the total energy ,the total time and the surrounding conditions are the same at the end point after time T (Fig. 3) the entropy in system B is lower than the entropy in system A and we will name this "The entropy paradox".

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Key Words: matter; anti-matter; gravity; anti-gravity; entropy

1. Introduction

System A and system B are both set to mode 1 with the same environmental temperature and same potential energy (Fig. 1). Because $M \gg m$, time "runs" slower near mass M than near mass m (based on GR gravitational time dilation rules).
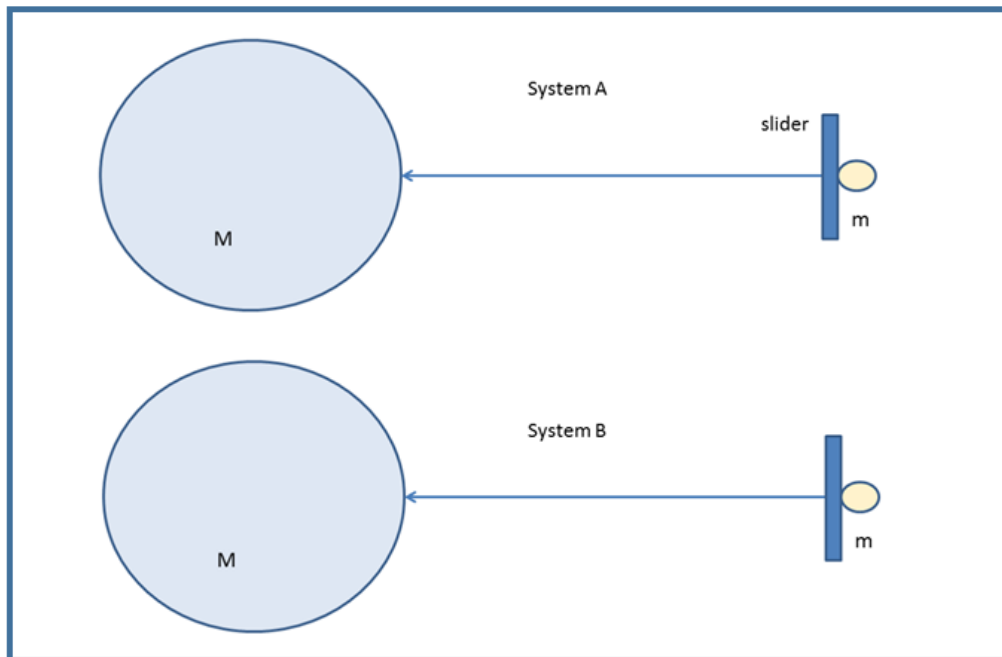

Figure 1: both systems (A&B) are in a stable steady state mode 1

After t_{b1} seconds system B turns to mode 2, by moving the slider and converting potential energy due to gravitational forces into kinetic energy and finally to mostly heat energy as mass m and mass M collide together, while system A remains in mode 1 (Fig. 2)
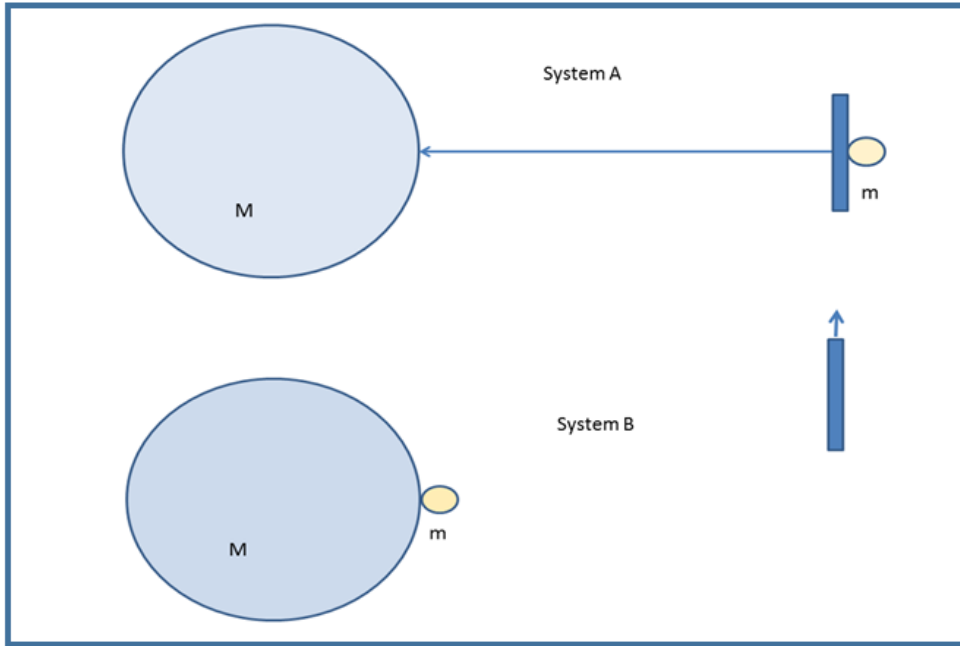
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Figure 2: System A in mode 1 and system B in mode 2.both systems are in a stable, steady state mode

After t_{a1} seconds system A turns to mode 2 ,by moving the slider and converting potential energy due to gravitational forces into kinetic energy and finally to mostly heat energy as mass m and mass M collide together , while system B remains in mode 2 . both systems remain in mode 2 configuration till all the environmental conditions are equal between them (Fig. 3)
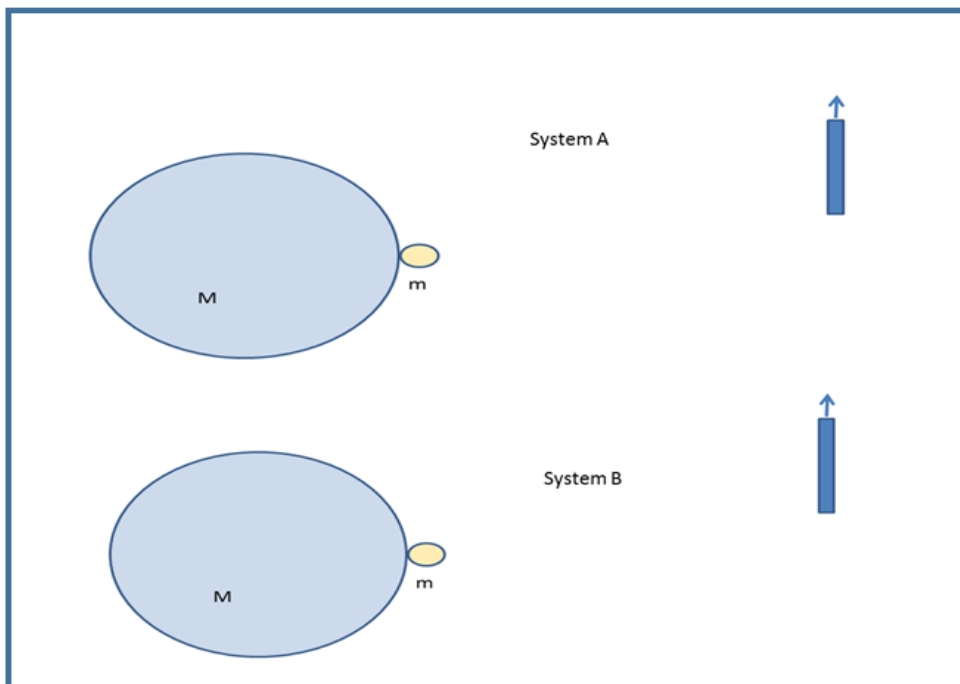

Figure 3: both systems (A&B) are in a stable steady state mode 2.

2. The paradox

Let's consider that mass m contains a blooming flower (Fig. 4) or water with ink spots (Fig. 5) thermally isolated from their surroundings, since the time dilation of mass m in mode 2 is larger than the time dilation of mass m in mode 1 and system B was turned to mode 2 before system A, the overall entropy in system B will be lower than the one in system A (as can be seen in the illustrations Fig. 4 and Fig. 5) even though both systems share the same energy and surrounding conditions at steady state mode 1(beginning) and share the same energy and surrounding conditions at steady state mode 2 (end) .We assume that the heat generated from the collision was removed out of the system immediately to assure that the difference in entropy is due to the difference in time dilation between the 2 systems and not to the difference in the thermal surrounding. The situation in which both systems **start and end** their process in the **identical steady state** energetic and environmental modes, but differ in their entropy level, meaning they passed a different route through the arrow of time seems to us like a paradox and we named it the entropy paradox.

System B

System A

https://www.youtube.com/watch?v=NUOzVynk4Ao

Figure 4: the decaying blooming flower in system A demonstrates the higher entropy compared to the un- decayed blooming flower in system B, Assuming that the flowers are fairly thermally isolated from their surrounding so they share practically the same thermal conditions in both systems and the decay is due only to the difference in the time dilation between the systems (illustration images from YouTube).

https://www.youtube.com/watch?v=Bz02z4GSS0k
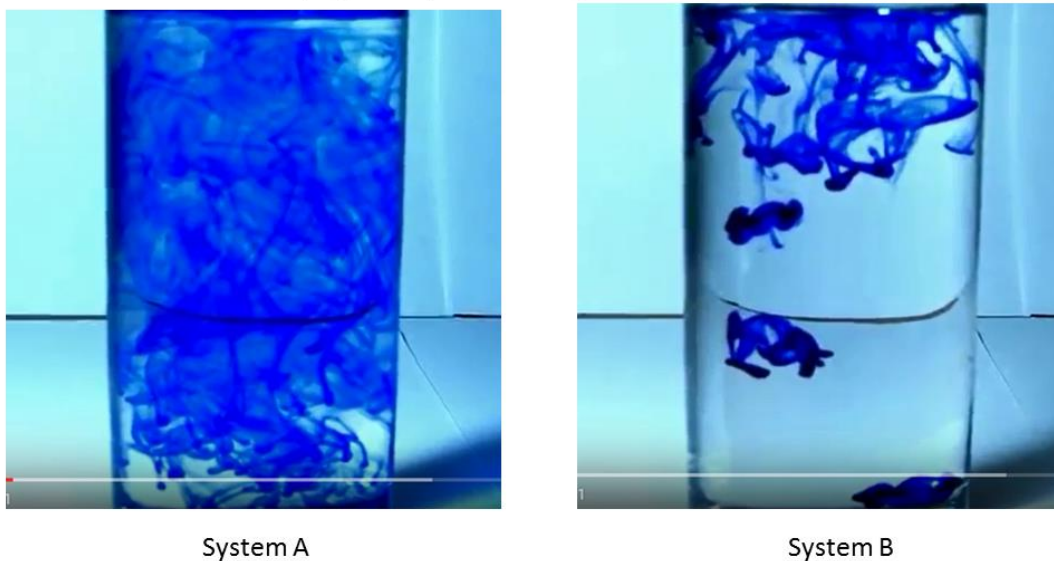

System A

System B

Figure 5: the uniformed diffused ink in water of system A demonstrates the higher entropy compared to the un-uniformed diffused ink in water of system B (illustration images from YouTube).

3. Conclusion

Even though in systems A&B the total energy and environmental conditions are the same, the final entropy is different. Even though system B converted its potential energy into kinetic and heat energy before system A, its entropy is lower .**That is in our point of view a paradox.**

Our theory claims that matter and anti-matter were originally produced, based on the big bang theory, by gamma energetic photonic radiation. Since we claim that photonic radiation don't influence time and apply no gravity (we claim that they are not components of the Einstein energy momentum tensor) and so we claim that matter and anti-matter must preserve two new conservation laws: 1. The "Conservation of gravity", 2. The "Conservation of time". The first new law of "conservation of gravity" states that if matter applies gravity, its partner anti-matter applies anti-gravity so that the total gravity of both particles sum up to zero as it was originally the zero

gravity of the photon energy radiation that created them (Fig. 6). The second new law of "conservation of time" states that if matter applies time dilation, its partner anti-matter applies time anti-dilation (time "runs" faster) so that the total time dilation of both particles sum up to zero as it was originally the zero time dilation of the photon energy radiation that created them(Fig. 7) . Our theory claims that matter and anti-matter are entangled through time and gravity.

We claim that when a matter increases it's time dilation (time runs slower/lower entropy) it's anti- matter entangled anti-particle increases it's time anti-dilation (time runs faster/higher entropy).The entanglement is achieved through the GRID extra dimensions [5],[6],[7],[8].So if at system B the overall entropy is lower than in system A, the entangled anti-matter particles of system B are in an overall higher entropy level than the entangled anti-matter particles of system A ,so the overall entropy level of both matter and anti-matter is conserved.

 Matter and anti-matter generated by a photon are entangled through gravity and time

Anti-matter
Anti-gravity

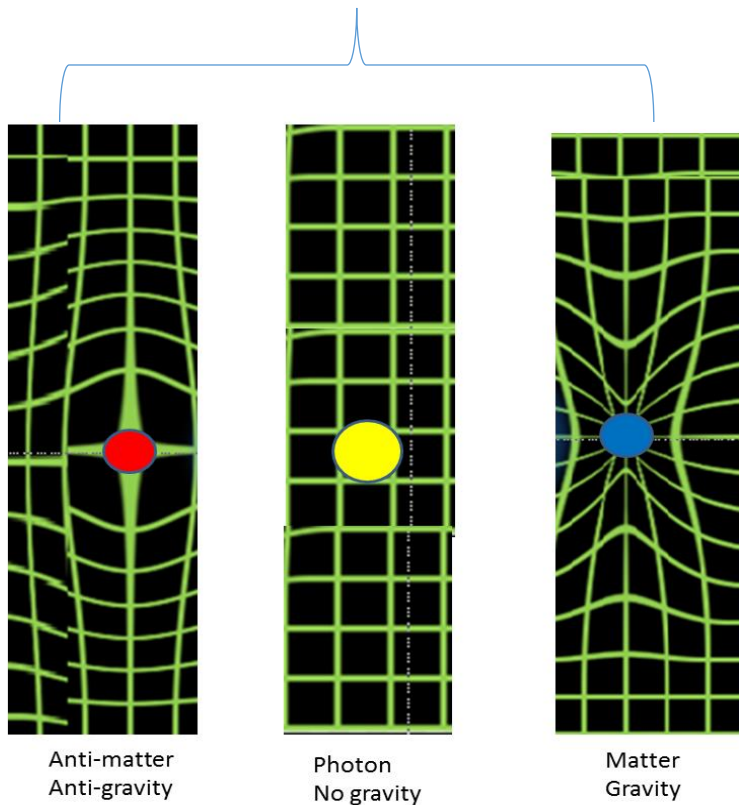Photon
No gravity

Matter
Gravity

Figure 6 : we claim that matter(blue - right) applies gravity by curving inwards the fabric of spacetime,photons (yellow - center) have no influence on the fabric of spacetime and anti-matter (red – left) applies anti-gravity by stretching outwards the fabric of spacetime.As can be seen in the image (illustration from YouTube) the matter and anti-matter that were generated from a photon are entangled through gravity and time in a way that cancles each other and conserves zero gravitation and zero time dilation of the original photon that created them.

anti gravities , anti-time dilation
Time "runs" faster
Entropy increases faster

Normal time (photon)

Entropy increases normally

Gravity Time dilation
Time "runs " slower
Entropy increases slower

https://www.youtube.com/watch?v=bnH_wiaF4sQ

Figure 7: we claim that anti-gravity increases the rate of change in the entropy (left hand side) while gravity slows down the rate of change in the entropy (right hand side) in order to conserve the entropy of the photons (middle) with the zero gravity effect which generated matter and anti-matter pairs in the first place during the big bang's photon dominated phase.

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Figure legends:

Figure 1: both systems (A&B) are in mode 1.

Figure 2: System A in mode 1 and system B in mode 2.

Figure 3: both systems (A&B) are in in mode 2 after time T , and both systems reached equal surrounding conditions and conserved the same energy (from potential to kinetic to thermal).

Figure 4: the decaying blooming flower in system A demonstrates the higher entropy compared to the un- decayed blooming flower in system B, Assuming that the flowers are fairly thermally isolated from their surrounding so they share practically the same thermal conditions in both systems and the decay is due only to the difference in the time dilation between the systems (illustration images from YouTube).

Figure 5: the uniformed diffused ink in water of system A demonstrates the higher entropy compared to the un-uniformed diffused ink in water of system B (illustration images from YouTube).

Figure 6 : we claim that matter applies gravity by curving inwards the fabric of spacetime,photons have no influence on the fabric of spacetime and anti-matter applies anti-gravity by stretching outwards the fabric of spacetime(illustration images from YouTube).

Figure 7: we claim that anti-gravity increases the rate of change in the entropy (left hand side) while gravity slows down the rate of change in the entropy (right hand side).
(Illustration images from YouTube)