

Proposed solutions to dark energy, dark matter, and gravity mysteries.

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Abstract

This article puts forth the theory that mass is energy in a dimensional form; mass doesn't just create gravity, but the dimensions themselves. The main part of this theory is when gravity gives a force on mass it will balance, but when gravity gives a force on anything without mass, such as light, there is imbalance. This article consists of explanation and evidence that centers on a new particle, the oreka, created when gravity alters the direction of photons.

Pre-Theory: This is where I'm coming from. I'm not proving this part but giving my basic viewpoint.

Our universe is where there is energy and it exists in the form of dimensions, length, width, height and such. Energy doesn't have to be in this form. I'm pretty sure where the energy came from to start this universe, it had no form like this. If I had a list of different forms energy could take for a universe I could explain it better. So the best example I can give for comparison is how the human mind (not the physical brain but the process of the mind) is energy based on dimensions of thoughtforms instead of the semi-spatial dimensions of our universe.

For instance, say there's a universe with just one sphere of energy in it. For there to be at least three dimensions, this energy needs to manifest that way. There's a theory that says the universe is a false vacuum sitting atop the true vacuum and if you poke through to the true vacuum, the universe collapses. I don't think that's right. It's not sitting atop the true vacuum but flying high above it. Even if you poked through, all the energy in the universe would keep it together. In other words, all the universe's dimensions are based on energy manifested in this form.

Our universe is mostly empty space with a lot of energy of the same basic universal form separated by long distances. But the universe doesn't come apart. It keeps the same spatial cohesion. By come apart, I don't mean expand, I mean the spatial dimensions breaking down so distance between galaxies and their positions jump around by billions of light years in random directions every moment.

What I believe is that mass isn't just about gravity, but mass creates creates dimensions. And energy without mass, such as a photon, does not generate this dimensional energy and so can only travel so far away from mass. I don't know if when it travels too far, it will loop around to the other side of the universe, bounce back toward mass, or just stop traveling. But I don't think it will disappear. I also am doubtful it will turn into mass. Well, until a telescope finds a duplicate galaxy where one is an older version of the other (based on how many billions of light years neutrinos will shoot before they stop), then we can only guess by math.

In quantum physics, there's a property called spin. If you don't know what this is, then an explanation according to quantum physics will sound like gibberish to you. The basic thing is anything with $1/2$ spin cannot exist in the same space (e.g. matter) and anything with 1 spin can

(e.g. light).

Particles with mass, such as matter and anti-matter, they all have a spin of $1/2$. They may combine spins to make it something else like helium has a spin of 0, but their real spin on an individual level is $1/2$.

Everything without mass has a spin of 1. The only exception is what are known as virtual particles that appear from a field (e.g. magnetic field, gravity field) and they exist for a zillionth of a second and travel a zillionth of the distance you can jump. They only exist to pop in, affect particles with mass, and then vanish themselves. For the difference, photons carry electromagnetic force. When they're light, they're not magnetic. But when you hold a magnet over something, virtual photons appear, apply magnetic force, and then vanish.

So if you took energy in your hands and then formed it into something dimensional, and then you did it again and tried to smash them together, doesn't it make sense that they shouldn't just flow through each other like two rays of light, but instead push the other away to keep their shape?

And if course if you turned on two light bulbs beside each other, would you expect the light to collide with each other like a car accident or would you expect the light to go through each other?

The universe somehow formed energy into mass in a way to keep the speed of everything in synch. That is, the faster you go toward the speed of light, the slower your body moves. I don't have any idea how it did this.

The theory I am proving: Gravity on nonmass

Before I go into my theory, I want to set it up to explain as clear as possible.

The universe has four fundamental forces, magnetism, gravity, weak interaction, and strong interaction.

In magnetism, which we're all familiar with, it's simple. You hold a magnet and bring it near a paperclip and without touching the paperclip, it picks it up and holds it.

What is happening is the magnet creates a magnetic field. It is not creating photons and sending them everywhere as this would mean it would be creating massive energy. No, instead the magnetic field is just a fundamental force of the universe. When it connects with something that can be magnetized, say a paperclip, still no photons came out of the magnet, only the magnetic field. But, what happens is the magnetic field creates virtual photons. These virtual particles last for an infinitesimal amount of time and simply transfer electromagnetic energy to the atoms being magnetized. Once the energy is transferred, they're used up and they vanish. This happens over and over and that's how magnetic force works.

The magnetic field moves at the speed of light. So let's say there's a two particles with opposite magnetic charge so they will pull together.

 electron

 positron

They send out their magnetic fields. Well these are actually a sphere around each particle but they're drawn a little more simply so let's pretend these are circles around them instead of the simple drawings they are.



The magnetic fields go at the speed of light and let's say one particle moves quickly before the field reaches the other.

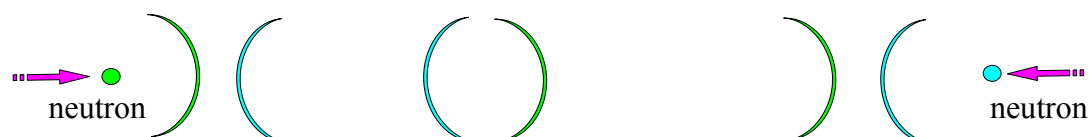


And so now, the electron is moved toward where the positron used to be even though it now has moved. So the magnetic field does not reach out all at once, but it travels at light speed. The strength is equal to a sphere that expands around the particle. And the magnetic force is the exact same, but spread around the expanding sphere so the bigger the sphere gets, the more thin the magnetic field is. So it gets weaker far out. But it expands forever as far as we know.

Gravity seems a mystery. It's poorly understood because gravitons have not been detected. But I theorize gravity happens very much the same way as magnetism.

Mass creates a gravitational field that moves at the speed of light. And while gravitons have not been found, we've found that it does move at the speed of light. The official test was when Jupiter moved in the path of photons from a quasar JO841+1842. But if it did not move at the speed of light, then spacecraft would fly wrong.

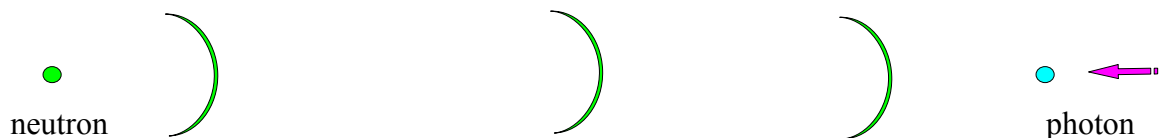
I could do a planets analogy, but two particles is much simpler. Again please pretend these waves are spheres around the particles instead of simplistic illustrations.



Two neutrons send out gravity waves and then the waves create virtual particles. The virtual particles are basically mechanical energy in a form. The particles merge into the neutrons and their energy goes and gives the neutrons mechanical energy to fly toward each other. If the neutrons are blocked by something, they still have this energy, it merely exists as potential energy.

The virtual particles created are called gravitons. They aren't really that special compared to virtual photons in magnetic reactions. They're both embodiments of mechanical energy telling things to pull together. The only difference is virtual photons are based on charge and virtual gravitons are based on mass.

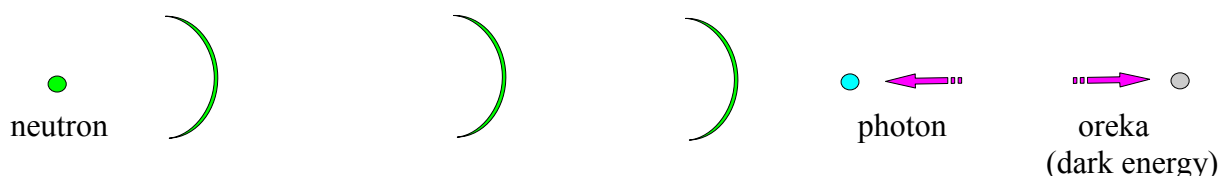
But what happens when it's a neutron and a photon?



When there's magnetism, either attraction or repulsion, then a virtual particle is created to act on another particle; it does it because something is also sending out a magnetic field. When gravity creates virtual particles to act on another particle, it does it both (1) when something is sending out a gravitational field, and (2) when something is not sending out a gravitational field.

As my theory said, mass creates dimensions of the universe (as evidenced by the quantum physical property spin) and the force of mass pulling other mass equals out. It bends the universe's dimensions, curvature of space plus rate-of-time and such. When mass pulls nonmass, the universe does not have its dimensions changed which is an imbalance.

My theory is that when gravity pulls on a particle without mass, there is an imbalance and an energy (aka. particle) must be made to right this imbalance. Nature just does this type of thing. If it did not do things for balance like this, time and space would lose all symmetry. It's like a circuit-- gravity on mass is closed and gravity on nonmass is open.



I define the oreka particle as:

- All gravitational energy applied to massless particles must be balanced by the creation of gravitational energy in the opposite direction. This balance is not satisfied until the energy is released into mass.
- The oreka only interacts with mass.
- It does not affect gravity, electromagnetism, the weak force, or the strong fundamental force. They also don't affect it.
- It has no mass and combines in the same space like photons do.
- The gravitational field that creates it does not lose strength and will continue to create more orekas whenever it alters the path of photons, including more influence on the same photon repeatedly.
- Every oreka flies directionally away from the source of gravity at the speed of light.
- Orekas do not lose energy over distance. Only after connecting with mass to transfer its energy, does it disappear.

It basically is dark energy, but calling it dark energy confuses it with other theories. It is not an anti-graviton by definition, so it cannot be called that. The best name I could come up with was

oreka, from word for balance and equilibrium in the Basque language. Usually when I talk about orekas, I talk about dark energy.

If this theory is true, what would the universe be like?

1. Large masses will create orekas, but since the orekas will fly away from the mass, they will thin out. The only result will be a net reduction in the large mass's gravitational effect on other mass but the large masses will affect photons just the same. The net reduction in gravity depends on how much photons their gravity affects.

For instance, let's say there's a planet and a star of the same mass and size. This is an analogy so let's pretend the planet won't collapse. The planet isn't putting out much photons so its gravity produces few orekas while the star is churning out a ton of photons so it will make tons of orekas as its gravity bends the path of light.

Since a star would have the most noticeable effect, then is there any unexplained reduction in gravity on mass from a star?

Yes, from our own sun.

People discovered our sun's planetary orbits are widening faster than they should be. This is taking into account the sun losing mass by radiating energy, the sun's radiation hitting the planets, the sun transferring its rotational energy to the planets, and any potential changes in the gravitational constant. [1]

2. Orekas are the missing force that moves space clouds ("molecular clouds") in galaxies.

These are the three main large galaxy types, all of which are flat because they spin.

- a) Spiral galaxies -- They have a bunch of dense stars in the middle and arms of molecular clouds spinning around it. The clouds have a lot less mass than the center but still form stars.
- b) Elliptical galaxies -- They're saucer-shaped. Their mass is mostly evenly distributed.
- c) Lenticular galaxies -- They're like an elliptical except there are rings, not arms, of molecular clouds around it. The clouds have hardly any stars in them.

Galaxies surrounded by others are getting bombarded by orekas all around it. It's like air pressure but more like if wind was blowing on something from all directions at once. It exerts a compacting pressure.

All galaxies have small bits of particles in it, called interstellar medium, but they're usually too thin to soak up all the orekas. Where there aren't that many molecular clouds, like ellipticals, then orekas pass right through them, hitting a few planetary bodies but having little effect. Where there are a lot of molecular clouds, which is the arms of spiral galaxies, then the clouds will soak up all oreka particles.

But wouldn't the orekas just compact all the molecular clouds into the center of a galaxy so there couldn't be spirals? Well it turns out that these molecular clouds are like the earth's atmosphere. Hot air rises from the galaxy's center (on a two-dimensional plane though) and cold air drops back to the center. So if not for orekas, spirals would lose their molecular clouds. The flow is called a galactic fountain.[2] And what causes the molecular clouds to get hotter is the stars [3] and spiral galaxies have most of their stars at the galaxy's center. This galactic fountain keeps orekas from compacting all molecular clouds.

Spiral galaxies have an interesting property where the center and galaxy arms spin at the same rate. There isn't enough mass in the galaxy arms to keep this up and if you added mass to only the arms, then the spiral would break down: the clouds would mostly turn to stars, the galaxy would change more into elliptical, and the extra mass would gravitate toward the center of the galaxy instead of the arms. So the only way these clouds can rotate at the speed of the core is for an energy pressure with no mass pushing them.

And when spirals have separate arms, what keeps the arms from joining is the gravity of the spiral's own galaxy creates orekas in the void between the spirals. These constantly generated orekas flow and push on the arms so they don't join.

Now the prevailing theory is that what causes the arms of spiral galaxies to spin as fast as the center is extra mass, but some invisible extra mass, called dark matter. Now I gave earlier reasons why extra mass would not work, but the one that I gave recognized officially as a problem with dark matter theory is the cuspy halo problem, that the matter would fall into the center of the galaxy and it would mean there still wouldn't be extra mass in the spiral arms.

Even if galaxies had a huge amount of hidden mass, why doesn't it go to the center? Globular clusters, the massive circle of stars orbiting the centers of galaxies show little evidence they have dark matter in them. If you look at photos of them, you'll see they also have little to no clouds.

Elliptical galaxies also lack signs of dark matter. For example, the movement of Messier 105 (also known as M105 and NGC 3379) shows an absence of dark matter. [4]

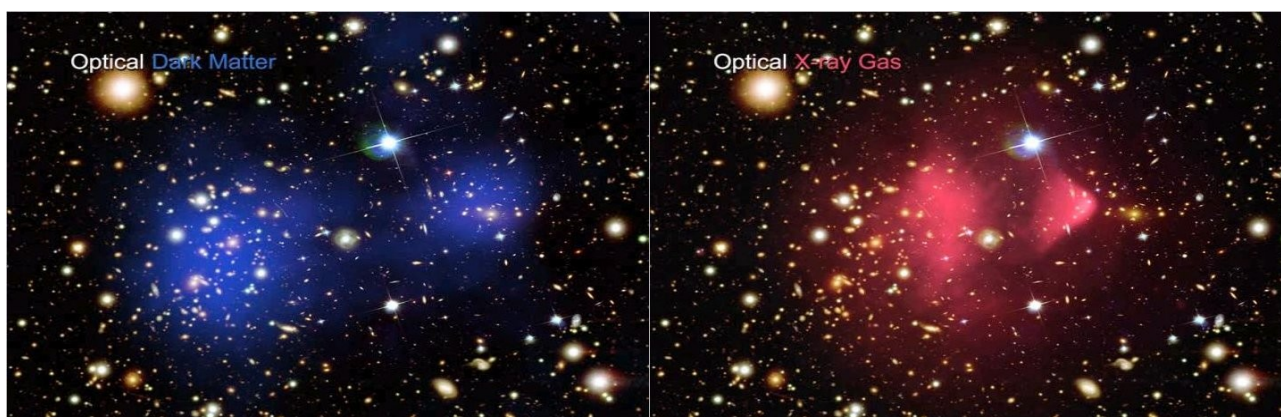
There's a lot more examples. VIRGOHI21 is an extended region of neutral hydrogen (HI) in the Virgo cluster that has no stars, only gas, and has a bunch of unexplained movement that is not accounted for by its mass. But if it had more mass, it would condense into stars. HVC 127-41-330 is another cloud moving faster than its mass. If it had more mass, it would be forming stars.

Our galaxy, The Milky Way, has two large molecular clouds orbiting it, the Large and Small Magellanic Clouds. These orbiting clouds block the push of orekas and exert a net pull on The Milky Way, distorting it.[5] And gas clouds like to connect,[6] which holds true in my theory.

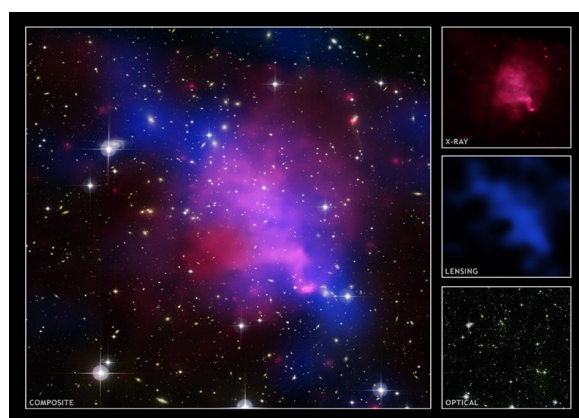
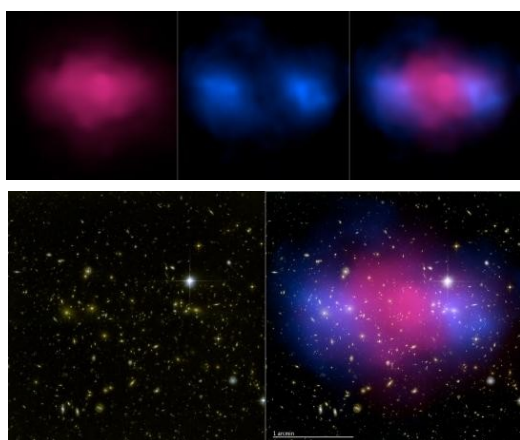
The most up to date theory about dark matter is that it's a halo around galaxies, around the farthest molecular clouds. If that were true, then I would think galaxy collisions would be different. In looking at photos of galaxy collisions, [16] what you'll see is the cores of spiral galaxies--where

there's lots of stars and not so much molecular clouds--will usually be staying separate. But then the molecular clouds circling the galaxies will link up. If the galaxies were surrounded by a halo of dark matter, which based on theories is about five times the mass of each spiral galaxy, would show signs of enormous gravity pulling the whole galaxy together at once. Rather it works like the molecular clouds link up.

Another issue is that if there were dark matter halos, there would be a lot more satellite galaxies and debris orbiting large ones which isn't seen. Computer simulations also find galaxies simulated with dark matter come out too small or have too little spin.[7] The dark matter cosmology predicts that there will be more dwarf galaxies than there are and they will have more mass. Instead what is found is they have less galaxies and less mass.[8]



Further evidence is The Bullet cluster (1E 0657-558), a collision of two galaxy clusters. [17] If you first see the picture with the blue regions, those are the masses of the galaxies. Supposedly a lot of invisible mass is in those blue regions, but galaxies are also in those regions with visible mass. Next see other the red highlighted image. Do you remember how hot clouds rise away from galaxies (yes these are galaxy clusters but still)? Do you also remember how in my theory, clouds absorb orekas and have a net force pushing them together? The red regions are clouds too thin to be molecular clouds and too thin to be visible, but they still are clouds and instead of spread out, they are clumped together. The clouds instead of following the main gravity, stay to themselves in very thin clumps.



Another example is Galaxy Cluster MACS J0025.4-1222 in the left two pictures.[18] Clouds that too thin to be seen by visible light will obviously have low mass and still clump together because of how orekas work on clouds in outer space. Abell 520 "The Train Wreck Cluster" is another instance

in the right picture above.[19]

And then we come to dwarf spheroidal galaxies. Astronomers have spotted a number of them orbiting our galaxy. They are all old galaxies that formed 10-12 billion years ago. Most have not made new stars for billions of years. But what is interesting is the stars are moving too quickly for the mass of anything visible to do it and they move at different rates.

Well first of all, the shape of those galaxies is a sphere. Most galaxies are circular, not spheroidal. Galaxies are circular because they rotate and spheroidal because they don't. (Leo I, I know has been at least confirmed not to rotate.[20]) Galaxies and solar systems rotate because they have a large mass in the center, which of course rotates. Even black holes rotate.[9] Instead with these dwarf spheroidal galaxies is what little mass these galaxies have is clumped into a sphere.

I tried to find gravitational lensing studies that would confirm how much mass they have and it appears not much has been done. The only article that turned up was, "A gravitational lens candidate behind the Fornax dwarf spheroidal galaxy".[10] It revealed no evidence of dark matter.

In these galaxies, the less gas and dust in them, the more they move. The Leo group of dwarf spheroidal galaxies have the highest amounts of gas and dust of the dwarf spheroidals and their stars move the least in ways not accounted for by their mass. On the opposite end, the Segue dwarf spheroidal galaxies have pretty much no gas or dust at all and their stars are moving in extreme amounts not accounted for by their mass. Some scientists have speculated that if it was not extra mass moving the stars, then the excessive star movement might be because the galaxy's form is being disrupted.[11]

Based on my theory of how orekas interact with gas and dust, it is the orekas pushing on gas and dust which keeps these satellite galaxies from experiencing tidal forces. And the reason these galaxies keep from being ripped apart [12] is because they don't rotate and it's easier to maintain their cohesion in a non-rotating sphere than a rotating saucer. So when tidal forces tug on it, instead pieces coming off it like a rotating galaxy, it keeps together. And when they have some clouds, then it helps them be more stable.

3. The universe will expand in proportion to the energy between galaxies. This energy is mostly cosmic microwave background radiation and when this is fully absorbed, the universe will not expand any longer and begin to compact.

We've got galaxies here and there creating gravity. They create electromagnetic energy as well, but most of the electromagnetic energy in the universe is from cosmic microwave background radiation. Galaxies are mostly empty space so orekas mostly go off into space and leaves each galaxy. The orekas continue at the speed of light and floods the void between galaxies. They continue to exist until they strike anything with mass, which they then push on. Where there is a lack of these, it makes a vacuum in a sense and galaxies are pushed there. But the universe retains its quasi-flat shape because that shape is where all the orekas are coming from.

Astronomers have discovered that there are mysterious flows of galaxies in space not explained by how gravity decreases over distance. Even dark matter would clump around mass. These flows are

uneven.[13]

But why is the expansion speeding up? That's simple. Because between galaxies are almost entirely photons, mostly in the form of cosmic microwave background radiation. So the farther out the galaxies spread, the more orekas are created. Of course since gravity falls off to almost nothing, the speeding up won't speed up too much. And since the cosmic microwave background radiation loses energy by thinning as the universe expands, the expansion eventually will slow. If the cosmic microwave background radiation ceased entirely, then the galaxies should start merging together.

If the universal expansion phenomenon was not due to orekas and instead affected photons, then there would not be the anomaly of extra energetic photons. When photons (including cosmic microwave background radiation) travel through galaxy clusters, the pull of the gravity speeds the photons up and they gain energy. But the photons don't not lose the energy on the way out. If the expansion of the universe was not from orekas, then it would affect photons and they would lose energy on the way out. But instead, all photons gain twice as much energy as expected.[14] Related to this is the Late-time Integrated Sachs–Wolfe effect.

Please understand that the mass of a galaxy does not make the it expand from other ones. It is pressure of orekas from other galaxies and this pressure takes the speed of light to reach mass.

And I don't know if orekas have very much do to with it, but they found spiral galaxies lining up like beads on a string over a long distance. They are not lined up one dimensionally, but in a circle. They are lined up so they spin like beads on a string can spin. [15] There is a very good video and article here: <http://www.astronomy.com/en/sitecore/content/Home/News-Observing/News/2006/05/Galaxies%20like%20necklace%20beads.aspx>

How to directly test for the creation of orekas

All the methods I can find cost a fortune.

Method 1

Create a room on the earth (for gravity) and the room must be completely a vacuum. At the bottom, have a cylinder where massive amounts of photons bounce back and forth horizontally. The photons must not bounce upward. The amount of photons produced must be extremely high energy. Slow light will not work because there is mass in the way and the amount of orekas produced is probably determined by how fast light goes.

Above it, fastened to the room is an extremely sensitive weight scale (not mass). The scale must be fully fastened. Hanging below the scale on a chain. The chain goes through a small hole in a large mass and then hangs way down to prevent orekas from reaching the scale. And at the very bottom of the scale is a weight. There will be nothing between the cylinder on the bottom and the weight so orekas will directly hit it.

The cylinder at the bottom is turned on. If it works, then the weight will be very slightly pushed upward and the scale will register a lessening of mass, only if it is sensitive enough.

To do this will cost at least millions of dollars and who knows if we have the technology to keep

photons bouncing back and forth and not going upward. If the photons strike the weight-object, it will have a force and make the experiment invalid.

Method 2

Go on the moon or any astronomical body with gravity by no atmosphere. Create a cylinder that bounces massive photons around horizontally but none fly upward. Then aim it at a comet or meter to see if it alters its course.

Method 3

Create a cylinder that bounces massive photons around horizontally but few fly upward or downward. This time the cylinder is sealed. It of course again is a vacuum. Try to make the cylinder and what fills it with photons light in weight. And do not have either fastened to anything. Enough photons should make it fly upward.

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Katherine Garrett & Gintaras Duda.

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<http://rashidfaridi.wordpress.com/2008/09/25/mysterious-new-dark-flow-discovered-in-space/>

14. "Where Matter Fears to Tread", New Scientist issue 2669, 14 March 2009"

15. (a) Detection of the effect of cosmological large-scale structure on the orientation of galaxies.

Ignacio Trujillo, Conrado Carretero, Santiago G. Patiri. 2005-2006. <http://arxiv.org/abs/astro-ph/0511680> (b) Galaxies like necklace beads. Astronomers find that galaxies are not oriented randomly in space. Robert Adler. May 1, 2006.

<http://www.astronomy.com/en/sitecore/content/Home/News-Observing/News/2006/05/Galaxies%20like%20necklace%20beads.aspx>

16. Do a Google image search for "galaxy collisions". Example links with quality photographs:

<http://www.universetoday.com/15274/twin-spiral-galaxies-dance-together/>

<http://cas.sdss.org/dr3/en/proj/basic/galaxies/collisions.asp> and

http://en.wikipedia.org/wiki/Mice_Galaxies http://en.wikipedia.org/wiki/NGC_5195

17. These are really good pictures because they have separate highlights of gravity and X-rays.

Most photographs put the highlighting as one so you can't see how they look separate. The photos

are done by NASA so they are not copyrighted, but NASA hides the separate ones on its website:

Dark Matter Exists. Sean Carroll. August 21st, 2006 11:52 AM.

<http://blogs.discovermagazine.com/cosmicvariance/2006/08/21/dark-matter-exists/>

18. This is the only place that gives separate images of blue for gravity and red for X-rays instead of together. The photos are done by NASA so they are not copyrighted, but NASA does not keep an

image of separate ones on its website and the sources the article links to don't give the separate

ones: "2008.08.27. - Újabb nyom a sötét anyag utáni kutatásban"

<http://www.gothard.hu/astronomy/astronews/html/2008/20080827-ujabb-nyom-a-sotet-anyag-utani-kutatasban.html>

19. Abell 520 "Train Wreck" cluster, composite view. Chandra X-ray observatory site, Harvard University. Images by NASA. April 2007.

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