Why should 2265 years old Archimedes principle, 327 years old NEWTON laws and 107 years old Einstein's E=mc^2 be modified?

Ajay Sharma

Fundamental Physics Society His Mercy Enclave Post Box 107 GPO Shimla 171001 HP India   Email: ajay.pqrs@gmail.com

Abstract

Thinking ahead of Archimedes, Newton and Einstein

This document contains **_THREE interviews_** on Generalization of 2265 years old Archimedes Principle, Newton' s law, Einstein 's mass energy equation E=mc^2 . Ajay Sharma is author of book **Beyond Newton and Archimedes,** published from Cambridge, England Home page of book (contents and description)

http://www.cisp-publishing.com/acatalog/info_109.html

His book Beyond Einstein and E=mc^2 will be published in July 2014. He is author of 45 research papers in international journals including SCI-E journals. He has been invited to over 85 conferences , and presented his papers in USA and England.

Part I

Conversation with Ajay Sharma on generalization of 2265 years old Archimedes Principle

Q1. Who was Archimedes? What is his principle in simple words?

Ajay Sharma: Archimedes was an ancient Geek mathematician, engineer and scientist of Syracuse.

 According to Archimedes principle when body is immersed in fluid (water) , its weight decreases . The decrease in weight is equal to weight of the water   displaced by body from the pot. It is the oldest established principle of science i.e. 2265 years old.

Q2. What are limitations of applications of Archimedes principle?

Ajay Sharma: The applications of Archimedes principle are based upon the equations . The mathematical equations based on Archimedes principle became feasible after 1935 years when Newton published the law of gravitation in 1685 (defined g).The equations were written for weight and upthrust .

   Now the principle is used qualitatively to explain the state of rising, falling and floating bodies.

Q3 What are limitations of the principle? What is the main reason for these?

Ajay Sharma : According to Archimedes principle the SHAPE of body (spherical, umbrella shaped, flat, twisted, long pipe shaped etc.) has no role to play at all, it is prediction of Archimedes principle.   Archimedes principle does not account for the SHAPE of body, it is the BIGGEST limitation.

Thus according to the principle only density of body and density medium are two factors which are significant in this regard. The other factors such as shape of body are completely insignificant.
        Consider a body of gold (density 19.32gm/cc)   of any shape (spherical, umbrella shaped, flat, twisted, long pipe shaped etc.)   may be of mass 1mgm or 1kg. According to Archimedes principle the state of body should be same in all cases, as all other factors (except densities) are insignificant.

Q.4 How the limitations of Archimedes principle can be understood in case of falling bodies ?

Ajay Sharma : According predictions based upon Archimedes principle the bodies of gold of different shapes (spherical, umbrella shaped, flat, twisted, long pipe shaped etc.) must fall equal distances in equal intervals of time. But the spherical body falls quickly than twisted or umbrella shaped. The body may weigh 1mgm or 1 quintal or different. The heaviness of body has no role to play, but this observation is contradictory to experiments.

Q.5 **How the limitations of Archimedes principle can be understood in case of rising bodies ?**
Ajay Sharma: The small pieces of wood(lighter than water) or big logs of wood (whose densities are equal), will rise through equal distances in equal intervals of time in water. But the big log of wood rises slowly compared to small pieces. But it is again contradiction from Archimedes principle.

Q.6 **How the limitations of Archimedes principle can be understood in case of floating bodies ?**

Ajay Sharma : According to the principle the body floats when density of body is equal to density of medium. According to initial observations , if the body is umbrella shaped then it can float even if its density is more than that of medium. In 2012 , a paper is published in the journal 'Soft Matter' pages 7112-7115 published by **Royal Society of Chemistry , London** by Italian scientists Roberto Piazza and others.

     According to the paper experimentally small particles of gold can float in lighter medium. It implies that denser particles can float in lighter medium. It is contradictory to Archimedes principle. LINK

http://pubs.rsc.org/en/Content/ArticleLanding/2012/SM/c2sm26120k#!divAbstract

Q7 How to remove the limitations of Archimedes principle?

Ajay Sharma : 2265 years old Archimedes principle is generalized to explain the limitations. An additional coefficient comes in picture of the generalized form of the principle . It is called the coefficient of proportionality. It takes in account SHAPE OF BODY and other factors. This coefficient does not occur in the original form of Archimedes principle.

   Regarding this paper was sent to Editor at Pennsylvania State University, USA and Editor appointed Professor Prasad Khastgir of Banaras Hindu University , Varanasi as referee for evaluation of paper. After critical analysis and correspondences for one year Professor Khastgir recommended the paper for publication and it has been published from London. This journals is now owned by Springer.

Q8 In your book Beyond Newton and Archimedes and in research papers you have mentioned about mathematical limitations of Archimedes principle. Explain it.

Ajay Sharma. Archimedes principle is also used to calculate the external or internal volumes of   floating bodies. It can be done with help of mathematical equations. Let material filled in balloon is 200cc. Under one particular condition the volume of material filled in balloon becomes INDETERMINATE (0/0). It is not justified.

        If the generalized form Archimedes principle is used then we get exact volume V (200cc). Thus the generalized form is justified. This is paper is published in International journal of Fluid mechanics Research , at volume 38 pages 444-449. The journal is published by Begel House in USA. Link

http://www.dl.begellhouse.com/journals/71cb29ca5b40f8f8,3b02a11311f01f8d,4ef82e535 e5949c4.html

Q9 What scientists think about the generalization of 2265 years old Archimedes principle.

Ajay Sharma : After approval of experts in field of fluid dynamics the papers have been published in internationals journal published from USA and England. Likewise my book' **Beyond Newton and Archimedes'** is published. It discusses Archimedes principle and its applications with details. The scientists have recommended right ideas , support of Govt. of India is required for experiments.

Q10 What is the status of the oldest established principle ?

Ajay Sharma : For final confirmation of generalization some serious discussion with scientists is required. Only Govt of India through its some scientific body can initiate the chain reaction. Also some experiments are required for those Council of Scientific and Industrial Research and its associate National Physical Laboratory, New Delhi has given permission for experiments. For this funds are required.
So from my end home work is complete . I pray Mahamim Rastrapati Sh. Pranab Mukherjee ji , hon'ble Prime Minister Narinder Bhai Modi ji and hon'ble Chief Minister Sh. Virbhadra Singh ji,   to help in this pursuit for the sake of pride of 125 crore Indians.

Q. 11 How long it will take you to convince the world about limitations of 2265 years old Archimedes Principle ?

Ajay Sharma : It can be within one and half to two months.
 Govt should form a committee of scientists (may be from colleges , Universities and research centers from Govt and private institutions) . I will give the members my paper , let these be studied by them for 30 days. Then they will give their objections and I will reply within 7 days.
                         Furthermore questions can be taken up before seminar. Thus only those people will participate who know the subject and concepts. The seminar can be video recorded and CDs or files can be sent to all over India for further comments. It will have little cost than our Mars programs which may touch Rs. 1,000 crores.

Part II
Q 1 Who was Sir Isaac Newton? What for he is known?

Ajay Sharma : Sir Isaac Newton is the greatest scientist of the world. He is mainly known for Laws of Motion and Law of Universal Gravitation. In 1687, he wrote the Principia which initiated or originated Physics. But it was beginning not end.

Link for Newton's Principia (1687)

http://books.google.co.in/books?id=Tm0FAAAAQAAJ&pg=PA1&redir_esc=y#v=onepage&q&f=false

Q 2 You have written in the book, 'Beyond Newton and Archimedes' that Newton did not give second law of motion.

Ajay Sharma : You look at textbook of science of 9th class and page 19 of the Principia. One finds that the second law which Newton gave in the Principia is not taught now. What is taught now was not given by Newton?

In the Principia after definition of second law of motion Newton has explained the law. In this explanation Newton has not given any mathematical equation. Scientists agree without reading the Principia that Newton has given equation force (F) = mass (m) x acceleration(a). The definition of the equation is regarded as second law of motion. It is simply ignorance, this equation (F =ma) is not at all mentioned in the Principia. It is also clear from the **Stanford Encyclopedia of Philosophy,** that law which is being taught as Newton's second law but was not given by him. All facts are clearly stated and explained, there can be no bigger limitation than this. Link

http://plato.stanford.edu/entries/newton-principia/#ThrEdiPri

Q.3 Do six billion people of the world not know the truth? The law which is known as Newton's second law of motion was not given by Newton.

Ajay Sharma: Some may be, some may not be. Huge efforts are required to break scientific inertia, and get right ideas introduced in textbooks. In 1750 Swiss mathematician put forth equation Force (F) = 2 mass (m) x acceleration (a) i.e. F =2ma. From here Euler speculated F=ma by dividing right hand side by 2. Like this equation F=ma was obtained. It is called Newton's second law of motion, without any logic.

But Newton neither mentioned this equation nor definition of second law of motion based on it. Whatever definition was given by Newton, is completely ignored by scientists. It is not taught at any stage. The second law of motion as given in the 'Principia' is regarded as untouchable. It is not right.

Q.4 OK we agree Swiss mathematician Eular gave F=ma (which is called Newton's second law of motion'). But who attributed or credited it to Newton?

Ajay Sharma: This is the biggest riddle of science. Eular died in 1783. Perhaps after this

Eular's equation F=ma was regarded as Newton's law. Had it been done in Euler's time or known to Eular , he would have objected. The group of scientists who credited this to Newton, have inadequate knowledge of the Principia . The situation would be clear if history of science in 19th century is completely and clearly studied. It should be done creating a specific project purposely. All books of the basic physics written between 1750 and 1825 must be looked carefully.

Q 5 Now let us take next question. In your book 'Beyond Newton and Archimedes ' you have pointed out a serious limitation of F =ma.

Ajay Sharma : The serious limitation of the equation F=ma is that under one particular condition mass of body becomes indeterminate (0/0). There can be no bigger limitation than this.
The mass of body is ratio of force (F) and acceleration (a). According to Newton's first law of motion if a body moves with uniform velocity (initial velocity =final velocity) , then no force (F) is required to move the body. If velocity of body is uniform (v=u) i.e. acceleration is zero (a=0), then it can be maintained without any force (F=0). Under this feasible condition (F =0, a=0), the mass becomes indeterminate i.e.

m = $\dfrac{F}{a} = \dfrac{0}{0}$

Under this condition it is absolutely wrong. Thus limitations of equation must be accepted by scientists, in view of scientific logic.

Q 6 What is Newton's Third Law of Motion? In your book Beyond Newton and Archimedes, why did you generalize it?

Ajay Sharma: According to Newton's third law of motion,
      'to every action there is equal and opposite reaction.'
      Let us throw a ball from the distance of 5m on the wall. The ball comes to original position after striking. Thus action and reaction are equal and opposite, hence third law of motion is correct. If likewise we throw the cloth ball on the wall, then it returns to distance of 3 m. Thus action and reaction are not equal. In this case (cloth ball) the third law of motion is not correct.
Thus according to generalized form of Newton's third law,
'to every action there is opposite reaction but may or may not be equal.'
The law can be understood by inelastic collisions.

Q 7 According to mathematical calculations of the mass of earth is 6x10^{24} kg. Can it change?

Ajay Sharma : In practical way the earth has not been weighed. The mass of earth is based on indirect calculations, and mathematical equation is M =gR^2/G.
  Thus to determine mass of earth, acceleration due to gravity (g) is required. g can be measured by many methods. Its value is 9.8m/s^2. It can be measured with mercury barometer. It requires 1m tube. Instead of mercury, water barometer can be used. It requires 12m glass tube. In case acceleration due to gravity is found different from 9.8m/s^2, then mass of earth can be different. So far in 371 years old history of barometers, water barometer is never formed. This experiment can be done in college ground and may initially cost Rs 25,000 to Rs. 50,000.

   Ajay Sharma   Mobile 94184 50899   Email   ajay.pqrs@gmail.com
book   Beyond Newton and Archimedes
http://www.cisp-publishing.com/acatalog/Philo.html#a109

Contents

1. 2360 Years Old Aristotle's Assertion Revalidated by Stokes Law
2. Construction of Water, Glycerine
and Ethyl Alcohol Barometers
3. Archimedes Principle: The Oldest Established Law
4. The Generalized Form of Archimedes Principle
5. Prediction of Indeterminate Form Of Volume From
6. Archimedes Principle Is Stokes Law Applicable for Rising Bodies?
7. Limitation of Existing Theories and an Alternate Theory of Rising, Falling and Floating Bodies
8. Route to Newton's Laws of Motion
9. Experimental Confirmations of Equations of Conservation Laws in Elastic Collisions
10. Elastic Collisions in One Dimension and Newton's Third Law of Motion

Part III

Interview with Ajay Sharma regarding inadequacies of mass-energy inter-conversion equation   E=mc^2
Q1 Who was Einstein ? What for he is known?

Ajay Sharma: Einstein was German scientist. Later on he became American citizen and known for theory of relativity primarily . German scientists Max Planck and Stark pointed out that Einstein's discovery of E =mc^2 existed earlier in scientific literature. In 2002 American historian of science Christopher Bijerkness in his book 'Einstein :The Plagiarist of Century' accused Einstein of stealing scientific contents of other scientists. However Time Magazine honored Albert Einstein as Person of Century leaving Mahatama Gandhi at second place. Einstein got Nobel Prize in 1921.

http://www.fourmilab.ch/etexts/einstein/specrel/www/

Q2 Was Einstein the father of Atom Bomb?

Ajay Sharma: Einstein may have not gone to the laboratory in Chicago where atom bomb was prepared. Einstein signed a letter written by experimentalist Szilard which was given to President Roosevelt and Manhattan Project (to form atom bomb) was established. Thus atom bomb was prepared. Einstein's equation E=mc^2 is used to explain the energy emitted qualitatively.

Q3 What are limitations of E=mc^2, you have pointed out in your book Beyond Einstein and E=mc^2 and research papers?

Ajay Sharma : This paper was published in German journal Annalen der Physik , which was neither international nor peer reviewed in 1905. At that time none of the scientists reviewed it. Whatever Einstein wrote, was published. I have critically analyzed the paper which should have been done 109 years before.

Q 4 What is the theme of Einstein's research paper?

Ajay Sharma: Einstein in his research paper considered a luminous body emitting light energy. Thus Einstein derived light energy mass equation L =mc^2. It implies that when light energy is emitted its mass decreases. In other words the mass is converted to light energy.

http://www.fourmilab.ch/etexts/einstein/E_mc2/www/

Q 5 What is the mistake committed by Einstein further ?

Ajay Sharma: Einstein derived the light energy mass equation L =mc^2 . Then in a pure speculation (without any scientific logic) Einstein generalized L =mc^2 to E =mc^2 (E : every energy). Here L was replaced by E. Such guess work is not valid in physics.

Q 6 What is the scientific anomaly in generalization of L =mc^2 from E=mc^2 ?

Ajay Sharma: The nature and mathematical equation of light energy are far different from sound energy, heat energy, chemical energy, electrical energy , nuclear energy, invisible energy , cosmological energy etc. The burning of paper and annihilation of electron-positron pair are different processes. Thus for every process the equation must be different, as inherent characteristics are different. Thus Einstein's deductions are unilateral and unscientific.

Q 7 How according to your research paper the mathematical derivation of   light energy – mass equation L=mc^2 is incorrect?

Ajay Sharma : In Einstein's derivation there are four variables . The number of light waves, magnitude of energy of light wave, angles formed by rays of light and velocity of measuring system.
(i) While deriving L =mc^2 Einstein has taken special or handpicked values of variables. For example, body emits only **two** waves, the magnitudes of energy of waves are **equal** , the waves are emitted in **opposite** directions and **velocity v** is in classical region (v<<c). The equation L=mc^2 is only formed under above conditions only.
(ii) If the above mentioned values of variable are not taken in the derivation then contradictory results are obtained.
(a) When luminous body emits light energy , then its mass must INCREASE. For example if a candle is lit , then while emitting light energy its mass must also increase and must continuing emitting light energy forever. Thus perpetual energy machine is possible.
(b) Under some conditions we also get the following results. The body must keep on emitting energy while mass remains the same. Thus energy is emitted from the **cipher** or void. It is contradiction of law of conservation of matter. In the Einstein's derivation sometimes equation L =mc^2 is not obtained.
(c) Einstein's derivation also leads to self contradictory results in many cases. Thus there are numerous and serious mistakes in the derivation. These are discussed in paper published in Physics Essays. Link
http://dx.doi.org/10.4006/0836-1398-27.1.139

Q8 Which equation is given by you instead of E =mc^2 ?

Ajay Sharma: I have given an alternate equation dE=Ac^{2}dm. Here A is coefficient of

proportionality . According to new or generalized equation $dE=Ac^2dm$, the energy emitted can be equal, less or more than $E=mc^2$.

Q9 .Every equation is incomplete without applications. So what are applications of $dE=Ac^2dm$.

Ajay Sharma: In many experiments $E=mc^2$ is not confirmed but regarded as true.
(i) On 11 Dec. 1951, Sir J D Cockcroft in Nobel Lecture claimed that in 1932 experiment E $=mc^2$ is confirmed. When I checked the mathematical calculations then deviation was found 10%. It would have been significant even if deviation would have been 10^{-6} %. There is no prize bigger than Nobel Prize, it is our duty to maintain its grace and sanctity. This issue has been highlighted in the paper published in international journal Physics Essays. Link
It is stressed that Sir Cockcroft's experiment to be repeated again which is beyond my control.
http://www.nobelprize.org/nobel_prizes/physics/laureates/1951/cockcroft-lecture.pdf
[http://dx.doi.org/10.4006/0836-1398-27.1.139]

(ii) Like this Nobel Lecture was also given by Otto Hahn on 13 Dec. 1946, Otto Hahn did not state anything about fission of U-235. It is clearly stated in the literature that Otto Hahn was first to cause fission of U-235, barium and krypton were the products in the reaction. It is also stated that $E=mc^2$ was found correct in the reaction. But Hahn did not mention at all in the Nobel Lecture about this. We need to critically analyze this issue. Link
http://www.nobelprize.org/nobel_prizes/chemistry/laureates/1944/hahn-lecture.pdf
(iii) It is nearly 40 years old observation in the literature in fission of U-235 and Pu-239 the energy emitted in fission was found 20-40 MeV less. In explosions of atom bombs at Hiroshima and Nagasaki , it is believed that $E=mc^2$ was completely obeyed but it is only qualitatively justified. Where $E=mc^2$ is not found correct, in those cases $dE=Ac^2dm$ can be used. It explains the experimental observations with value of A different than one.

Q 10 How $dE=Ac^2dm$ can be applied in nuclear physics?

Ajay Sharma: (i) Firstly let us consider example of deuteron (nucleus of heavy hydrogen). It has two characteristics, firstly the mass of neutron and proton must be universally same (universal equality of mass of protons and neutrons). Secondly that to break deuteron binding energy is required. This energy is 2.22MeV.
        If mass of neutron and proton is measured with help of $E=mc^2$ then binding energy

cannot be explained. Like this if binding energy is explained the masses of protons and neutrons are different. Thus contradictory results are obtained. Both the established experimental observations can be explained at the same time.

If $dE=Ac^2dm$ is applied here then both the observations are successfully explained. The reason is that in this equation coefficient of proportionality A is MORE than unity.
(ii) In this regard second example is about nuclear chain reaction (fission). In fission of Uranium-235 secondary neutrons are emitted. They move with velocity comparable to speed of light. Thus their mass must increase. But in the calculations of energy scientists take lesser mass than actual mass. Thus in this case prediction is more energy than it should have been. It is wrong.

If correct mass is taken then lesser energy will be predicted and can be explained with help of $dE=Ac^2dm$, in this case value of A is less than one. This paper is accepted for presentation in ' 23rd **Conference on applications Accelerators in Research and Industry** ' to be held in Texas, USA. It signifies its importance.

Q 11 You have a new theory of creation of universe. What it is?

Ajay Sharma: At present Big Bang theory of universe is used. According to this universe was created in a big explosion. At that time universe was of the size of atom and was infinitely dense and hot. Now next question is how whole universe reduced to size of atom?

I have replied this question in new theory of creation of universe, which is based on $dE=Ac^2dm$. According to this universe was created from 'zeroans' (particles of zero mass). The zeroans were converted to the 'primeval pulse of energy ' and nascent mass was created from the pulse. This nascent mass was in super active state and changed to various types of energies (predominantly to gravitational energy) and mass. The magnitude of mass grew and contracted due to gravitational energy. Due to excessive compression the repulsive force was created and in due course of time and explosion took place. Whole the theory is mathematical and based upon $dE=Ac^2dm$.

Q.12 Einstein's critics blame him for presenting the scientific facts (without mentioning names of inventors) as his own which were already present before 1905. Is it true?

Ajay Sharma: YES, Einstein simply presented and published them first of in un-reviewed German journal and got the credit of discovery. I have drawn attention of the scientific community towards this in my book **'Beyond Einstein and E=mc^2.'**

The origin of theory of relativity is based on the contributions of Galileo Galilee (first postulate, in 1932 in the book *Dialogue Concerning the Two Chief World Systems*), Henry Poincare (second postulate, 1898 The Measure of Time), Henri Antoon Lorentz (mathematical basis of various phenomena) , Joseph Larmor (time dilation,1897), George FitzGerald (length contraction,1889)   etc. **So the significant phenomena were defined before Einstein's June 1905 paper.** In 1912 Wilhelm Wien nominated Henri Lorentz and Einstein for Nobel Prize of relativity, but prize was never awarded. I have drawn attention of the scientific community towards this in my book 'Beyond Einstein and E=mc^2.' It may have nearly 500 pages and will be published in July 2014, it is press (European and American).

I have sent my work to over 1,000 Indian physicists (having doctoral degree or above) with HUMBLE REQUEST on comment of the papers/book with names, signatures, designations etc. The comments without identity I find meaningless. Also one can directly write to Editors as this work is published in international journals [Articles in this Journal are indexed and abstracted in Current Contents/Physical, Chemical, and Earth Sciences, ISI Alerting Service, Science Citation Index-Expanded (SCIE) including the Web of Science, as well as in SciVerse Scopus. The Journal is also included in the Research Alert Service, Chemical Abstract Service, and SCISEARCH online database.] These two papers are attached.

Ajay Sharma   Mobile 94184 50899   Email   ajay.pqrs@gmail.com

References

book   Beyond Newton and Archimedes

http://www.cisp-publishing.com/acatalog/Philo.html#a109