

ARISTARCHOS OF SAMOS: FOUNDER OF ASTRONOMY

NAMING ATV- 4 AS “ARISTARCHOS OF SAMOS”

Justification of Suggestion

The purpose of the following text is to support and justify the suggestion, on behalf of Greece, for giving to ATV-4 the name of the ancient philosopher-astronomer-geometer-mathematician *Aristarchos of Samos*. The text is composed of four sections and the “Conclusions-Suggestion”. Further information and international bibliography can be found in the following two, indicative only and available upon request, publications:

1. N.K. Spyrou, “Ionian Philosophers and Early Greek Cosmology”, Invited Open Talk, In Proceedings of the International Conference *Multiwavelength Cosmology*, 17-20 June, 2003, Astrophysics and Space Science Library, Volume 301, Kluwer Academic Publishers, Dordrecht, 2004.
2. N.K. Spyrou, “Ionian Philosophers and Cosmological Science”, Invited Talk, In Proceedings of the International Conference *Influence of the Olympic Spirit on Human Progress*, 5-7 December 2003, Ed. IDISIEEP, Publisher *Mathitis-Anatoli*, Thessaloniki, 2004.

1. Astronomical Knowledge of the Ancients

A few thousands years ago, people did not have the basic knowledge that e.g. the Earth is not flat. They did not know that the clouds in the sky were formed by the evaporation of the water on the surface of the Earth. They did not know the various chemical and biological processes occurring in the plants and the animals. They knew nothing about the transistors, the microchips, or the nuclear energy. Of course, beyond the forests, the mountains, the oceans, the flowers, the animals, they watched the Sun, the Moon in the night sky, but they didn't know that the bright points in the night sky were stars like the Sun. Therefore, it was **quite natural** to them to respect and feel fear for the unknown. Some of the ancient Greeks believed that the flat Earth was covered by a semispherical sky. Over that semispherical shield, there were hundreds of small holes, through which an external fire could be seen. This was their explanation for the stars. People, therefore, quite naturally, adored the fire and the stars as gods. In most of the human civilizations, the powerful beings of the sky were promoted to gods, and to each one of them there were given names, and relatives, and special responsibilities for the cosmic services they were expected to perform. For every human concern there was a god or a goddess. Nothing could happen without the direct intervention of gods, only through which Nature could function. If the gods were happy, there was plenty of food, and humans were happy. But, if something displeased gods, and this could happen quite easily,

the consequences were awesome, like floods, droughts, storms, wars, earthquakes, volcanoes, epidemics. So the gods had to be propitiated, to be made less angry, and this was the work of the numerous priests and oracles. Since the gods were capricious, nobody could be sure about their intentions, about what they would do. *Nature was a mystery, and so the understanding of the world was very hard.*

2. Ancient Ionian Philosophers, Astronomy, and Heliocentric Theory

The simple watching, by the primitive observer on Earth, of the skies and all their impressive phenomena started its first evolutionary steps towards science through the observation of ***two fundamental phenomena***. These are the diurnal *rotation of the celestial sphere*, due to the axial rotation of the Earth in twenty four hours, and the *orbital motion of the Earth around the Sun* in one year. For centuries, man struggled to understand and explain how these two phenomena were taking place. More precisely, whether they are due to the rotation of all the stars around the standing Earth, or they are due to the axial rotation of the Earth about its axis, as the Earth moves around the standing center of the cosmos, the Sun. As a result, ***two conflicting schools of thought*** arose, namely, the ***geocentric view*** of the world and the ***heliocentric view*** of the world, the first of which was the generally accepted and, hence, the dominant one.

The faith to the correctness and validity of the geocentric model of the world was powerful, it had a purely religious origin, and it was based on two unshaken beliefs. The first belief was that the Earth was the home of the gods, and so it is the immovable center of the world, so that the tranquillity and stillness of the gods never be disturbed. The second belief was that the celestial objects move around us (the Earth) in absolutely circular orbits, namely, perfect orbits. The conclusion about the geocentric view of the cosmos (not valid, not acceptable today, of course) was *aesthetically extremely simple (namely, only circular orbits around us)*, and, for this reason, it was *also scientifically easily acceptable (namely, simple physical laws)*. However, the proponents of both the geocentric and the heliocentric models did not have the necessary proofs for supporting the truth of their cosmic view. In fact, in both cases, the same known phenomena were used, and this contributed to the continuation of the conflict.

The need of finding firm proofs intensified and reinforced the necessity of observing the celestial phenomena. This continuous observation of the sky had some very useful consequences of interest in the every-day life. These are the invention of many *instruments* (like e.g. the *astrolab*, the *gnomon*, the *sundial*, the *celestial*

sphere, the *Antikythera mechanism*). Also the development of many new professions (e.g. the clock-maker, the engraver), and also of many methods for the measurement of time, for use in agriculture, in the determination of basic chronometric units, in the use of the constellations in navigation, in the invention of various systems of spherical coordinates etc.

So the ancient Greeks considered that the celestial Universe existed in order to serve them. Today, all the above mechanisms are considered as the forerunner of modern watches and computational machines. It is true that for the construction of such complex instruments, a very advanced geometrical sense of ancient Greeks is required. Therefore, beyond the knowledge of practical geometry (which characterizes also other near-river civilizations), some *very delicate notions and ideas are necessary, which, in the framework of Euclidean geometry, were given the form of existence theorems, and led to high technology, characterized by high mentality, abstract scientific thought, and mathematical skill.*

Since the appearance of the **Greek philosophers in ancient Ionia** about 2.5 millennia ago, the search of the heavens changes form, it acquires an *explicit scientific character*, and *the scientific revolution replaces the mythological explanation of the celestial phenomena*. What exactly was this revolution? Creation of the World out of Chaos. A Universe emerging out of chaos was in complete agreement with the faith of the ancient Greeks to a non-predictable Nature governed by capricious and perverse gods and goddesses. But, in the 6th century B.C., in Ionia the new concept developed, according to which the **Universe is comprehensible**, because it has *internal order*, because in Nature there are *regularities* permitting its secrets and functioning to be uncovered. It is exactly this order and miraculous character and nature of the Universe that were given by the ancients the name **Cosmos, namely, beauty (ornament)**.

It is remarkable that the revolution occurred in Ionia and not in one of the large cities of Egypt, India, Babylonia, China or Mesoamerica. This, actually, is not a question of simply academic interest, because we all know the various specific, particular and very important contributions of the ancient civilizations. ***Ionia had many advantages.*** In the first place, this geographic region consisted of many islands. Isolation, even if imperfect, results in diversity. Due to its large number of islands, Ionia was characterized by a multitude of political systems. ***There was no force capable of imposing social and spiritual uniformity to all these islands.*** As a consequence, the free search and quest of truth was possible, so that the acceptance and promotion of prejudices could not be considered as political necessity. ***Unlikely other people, Ionians were located at the crossroads of***

civilizations, not at the center of one civilization. The Phoenician alphabet was adopted by the Greeks for the first time in Ionia, and, in this way, the wide spreading of education and culture became possible. So, the writing was not a privilege of only the priests and scribes. Thoughts and ideas, which originated in many different places, were available for discussion, commenting, debating, and dispute (*exactly as it happens in every PB-HME*). On the other hand, the **political force** was in the hands of merchants, who effectively promoted the **technology** necessary for the success of their plans and purposes. ***It was exactly in Eastern Mediterranean, where the great civilizations of Egypt and Mesopotamia, but also of Africa, Asia and Egypt met and influenced each other in the form of the intense and direct confrontation of prejudices, languages, ideas and gods.*** It was in this way that the great idea arose, (namely, the realization of the fact that the knowledge of the cosmos is possible without the a priori acceptance of the existence of gods), and that there ***must exist principles, forces, physical laws that can be understood*** without e.g. the necessity of the direct intervention of Zeus for explaining the flight of a bird. ***Ionia, therefore, was the place, where science was born, and where between 600 B.C and 400 B.C. the great revolution to the thinking occurred.*** **The Ionians rejected prejudice and so did miracles.** Generally, it can be argued that the key to the revolution was the hand, namely, *the handicraft work, the experiment, the observation.* Some of the brilliant Ionian thinkers were children of sailors, farmers, weavers used to do handicraft work, in contrast to the priests and scribes of other nations, who were grown up in luxury and were reluctant to dirty their hands.

4. The Contribution of the Ionian Philosophers

It is not possible to enumerate all the Greek philosophers and their contribution. However, at least the names should be mentioned of the great scientists and philosophers from *Thales* to *Democritus* (in chronological order, *Anaximander, Pythagoras, Anaxagoras, Empedocles, Hippocrates*; all of them during the period 650-350 B.C.) and those after *Aristotles* (namely, *Euclides, Aristarchos, Eratosthenes, Hipparchos, Ptolemy, Hypatia*; all of them during the period 300 B.C.-450 A.D.). From all of them I shall refer only to one of them ***Aristarchos of Samos***, only because of our present objectives and not because their contributions to science were not important.

Aristarchos, an astronomer, philosopher, mathematician, and geometer of the School of Alexandria, was born in Samos and lived in the beginning of the 3rd

century B.C.(310-230 B.C.). **Aristarchos was the introducer, crier, and supporter of the radical in his time heliocentric theory.**

In describing the differences between the heliocentric theory and the generally accepted geocentric theory, we must take into account that the observed (from the Earth) motions of the planets are the consequence of the combination of the motions of the planets and of the Earth with respect to the Sun. Therefore, with respect to an observer on Earth, the observed (apparent) motion of a planet is periodically direct (namely, the planet is seen to move in the direction of the Earth's motion) and then, for a while, retrograde. For explaining the apparent motions of the planets, as well as those of the Sun and the Moon, the ancients invented the **geocentric system** of the world (or *Ptolemaic system*, after the name of *Claudius Ptolemy*). According to the geocentric system, **the planets move around the Earth following the so-called epicycles**. More precisely, the planet moves with constant speed around a small circle (the epicycle), whose center moves with constant speed around a larger circle (*the deferent*) centered on the stationary Earth. In this way, the ancients represented the apparent motions of a planet (both direct and retrograde) as the result of the simultaneous, uniform motion of the planet on at least two circles. **This complex and marvellous system constituted the absolutely accepted and dominant system of the world's description.** In reality, however the planets move (around the Sun) on elliptical orbits, so that the hypothesis of the uniform circular motions was not realistic. The observed differences, known to the ancients, remained unexplained. **These differences are naturally explained as a physical reality, if, according the heliocentric system of Aristarchos, the Sun was put where the ancients believed the Earth was.**

Aristarchos composed many scientific works, **most of which are lost**. Especially his treatise entitled: *On the dimensions and distances of the Sun and the Moon* was based on the theoretical structure founded by Euclides and contained *eighteen geometrical "propositions" and six "hypotheses"*. **Copies of some parts of the treatise of Aristarchus survived to date.** This is due to the fact that, since antiquity, *Pappus* (3rd Century A.D.) had included this treatise in a collection of works by *Appolonius*, *Archimedes*, *Autolycus*, *Euclides* and others in a volume with the title **Brief Astronomy**, to be distinguished from **The Maximal Astronomy** (or *Large Mathematical Syntaxis*, known as **Almagest**) of *Claudius Ptolemy*. Five copies of this manuscript are found today in the Apostolic Library in Vatican (with Codex Vaticanus Graecus No 204), and eight more copies are found in Paris (Paris, Gr.2348). The first typed version of the treatise of Aristarchos in Greek was edited in 1688 in Oxford by J. Wallis under the title *On the Dimensions and Distances of the Sun and the Moon*:

**ΑΡΙΣΤΑΡΧΟΥ ΣΑΜΙΟΥ Περί Μεγεθών και Αποστημάτων Ηλίου και Σελήνης
ΒΙΒΛΙΟΝ ΠΑΠΠΟΥ ΑΛΕΞΑΝΔΡΕΩΣ Του της Συναγωγής ΒΙΒΛΙΟΥ Β'
Απόσπασμα**

On the other hand, the treatise was published in 1913 A.D. as a book entitled *Aristarchus of Samos-The Ancient Copernicus*, with comments by Sir Thomas L. Heath. In the manuscript of the treatise, the Sun is not referred to as the center of the Solar System.

The theory of Aristarchos about the Sun as the center of the Solar System was published in another work, which also is lost. **However, the relative information is witnessed in an indisputable way**, by other ancient authors. So, Archimedes, in his mathematical treatment *Psammites (Ψαμμίτης, The Sand Reckoner)* writes:

Αρίσταρχος ο Σάμιος υποτίθεται γαρ τα μεν απλανέα των άστρων και τον Άλιον μένειν ακίνητον, ταν δε Γαν περιφέρεσθαι περί τον Άλιον κατά κύκλου περιφέρειαν, ος έστιν εν μέσω τω δρόμω κείμενος.

Also, Stovaeos, in his work *On Physics*, writes:

Αρίσταρχος τον Ήλιον ίστηση μετά των απλανών.

Finally, Plutarch, in his work *Peri Areskonton tis Filosofois*, writes

Αρίσταρχος τον Ήλιον ίστησι μετά των απλανών, την δε Γην κινεί περί τον ηλιακόν κύκλον, εξελίττεσθαι δε κατά λοξού κύκλου την Γην, άμα δε και περί τον αυτης άξονα δινουμένην και κατά τας ταύτης εγκλίσεις σκιάζεσθαι τον δίσκον.

The general meaning of the above citations is that ***Aristarchus made the Sun standing among the stars and the Earth moving around the Sun in an elliptical orbit causing eclipses of the Sun. These really impressive citations do not cast doubt that the paternity of the heliocentric theory belongs to Aristarchos of Samos.***

But Aristarchos is known not only as the introducer of the heliocentric theory. Essentially, he is the **“father” and founder of Astronomy, based on the logical reasoning, not on religious beliefs**. He is the inventor of *skafion*, a spherical sundial of special form. With the aid of this sundial, he managed to determine the moment of the **true noon** in a place on Earth (and more generally **to measure the time during a sunny day**); also the **geographic latitude** of a place, the true value of **the obliquity of the ecliptic, the daily declination of the Sun**, and the **exact dates of equinoxes and solstices** of a specific year (281 B.C.). Along with Heraclides the

Pontius, he is considered among the first, **who explained the daily apparent axial rotation of the celestial sphere**, considered as the result of the daily rotation of the Earth around an axis perpendicular to the Earth's equatorial plane. Also he explained **the succession of the seasons**, as the result of the **inclination** of the axis of rotation of the Earth with respect to the axis (perpendicular to the plane) of the **ecliptic**. He is the first Greek astronomer, who gave the **most accurate value of the apparent diameters of the Sun and the Moon**. It seems that he had a real sense of the really large distances of the stars, one of which, he believed, was the Sun itself. Finally, around 288 B.C., Aristarchos succeeded *Theophrastus* as the **leader of the Peripatetic School**, a post that he retained for eight years.

From the book by Pappus we learn that Aristarchos invented a **very remarkable method for determining the relative distances of the Sun, Moon, and Earth**, as well as **their relative dimensions**. The way of the thinking of Aristarchos was based on the **exact determination** of the moments of the first and the third quarters of the **phases of the Moon**. From the difference between these two moments he determined the **distance of Sun-Earth** in units of the radius of the Moon's orbit. The result was twenty times smaller than the exact one, but since then it has been used for centuries. **The above method of determination constitutes a really important contribution to Astronomy, and proves that Aristarchos had the ability of a geometrical viewing of the celestial phenomena.**

After the determination of the relative distances of the Sun, Moon, and Earth, Aristarchos invented an equally important method for **determining the relative dimensions of these three bodies**. The method was based on the determination, during an eclipse of the Moon, of the **relative curvature of the shadow of the Earth on the Moon's surface and of the surface of the Moon**. Using this result and the known (and approximately equal to each other) apparent diameters of the Sun and the Moon, Aristarchos determined the diameters of the Sun and the Moon, in units of the Earth's diameter. **Most probably, the discovery that the real diameter of the Sun was twenty times the diameter of the Moon, in conjunction with the fact that the distance of the Sun from the Earth was twenty times larger than the distance of the Moon from the Earth, led Aristarchos to the conclusion that the Sun, not the Earth, is the center of the world.**

The proposition of the heliocentric theory reveals that Aristarchos could judge with clearness, and also interpret and explain correctly the observed celestial phenomena, **without being affected by accepted for centuries**, although incorrect conceptions and doctrines and beliefs of his contemporary scientists. On the other

hand, the invention and use of *skafion* demonstrates that Aristarchos, could not only give successfully theoretical solutions to astronomical problems, but also invent and use the appropriate astronomical instruments. ***In other words, Aristarchos was also a skilful observer of the sky.***

3. Restoration of the Historical Truth

After all the above, ***the conclusion is that Aristarchos was the first to introduce the correct and accepted today heliocentric theory, and that he founded Astronomy on the logical reasoning.***

This must be emphasized particularly, because part of the international community, astronomical or not astronomical, either justified due to ignorance, or even unjustified, does not share absolutely this point of view. Unfortunately for the heliocentric theory, strong supporters of the geocentric theory with proponent Pythagoras, also from Samos, were scientists of the authority of Aristotle, Hipparchus, Ptolemy and others. ***As a consequence, the revolutionary idea of Aristarchos could not be accepted.*** It fell in oblivion, but it was not forgotten, until the times of Renaissance, when two millennia later, in 1543 A.D., it was justified by the famous Polish astronomer ***Nicolaus Copernicus***. Although Copernicus simply drew up the heliocentric theory from oblivion, ***repeating in this way the ideas of Aristarchos***, he, namely, Copernicus is recognized as the introducer of the heliocentric theory, and the accepted heliocentric system is still named internationally ***"Copernican", not "Aristarchian"***, as it should be (the same is true for the so-called ***Copernican Principle of Cosmology***). It must be emphasized that the survival of the heliocentric theory against the reaction by its opponents is to attributed much less to Copernicus, and mainly to the ***convincing arguments for its correctness*** given by ***Galileo, Kepler, Newton*** and others.

Therefore the question arises, whether the work of Copernicus is original and what is its value. In order to answer this question ***responsibly***, we must take into account the difficulties of the times of Copernicus, when the doctrines of Aristotle prevailed, and any disagreement with them was not allowed. ***In this sense, the contribution of Copernicus to the revival of the heliocentric theory is significant; but it does not suffice for attributing to Copernicus the paternity also of this theory.***

It is true that Copernicus was aware of the views of Aristarchos. This is verified by an extract of the manuscript of the treatise of Copernicus entitled *De Revolutionibus Orbium Coelestium*, which is still kept in the library of the University of Warsaw.

In that extract, one can see delineated a paragraph referring to the treatise of Aristarchos; but this paragraph, quite strangely, has not been included in the printed version of the treatise of Copernicus edited in 1543 A.D. In contemporary Greek, in translation by Professor S. Svolopoulos, the content of this paragraph is:

Αν και αναγνωρίζομεν ότι η πορεία του Ηλίου και της Σελήνης θα ήτο επίσης δυνατόν να εξηγηθῆ με την προϋπόθεσιν ότι η Γη είναι ακίνητος, τούτο είναι ολιγώτερον δυνατόν δια τους άλλους πλανήτας. Είναι πιθανόν ότι δι' αυτούς, ως και δι' άλλους λόγους, ο Φιλόλαος συνέλαβεν την ιδέαν της κινήσεως της Γης, η οποία, όπως μερικοί λέγουν, ήτο επίσης γνώμη του Αριστάρχου του Σαμίου και όχι δια τους λόγους, τους οποίους αναφέρει ο Αριστοτέλης και τους απορρίπτει. Αλλά, αφού αυτά τα ζητήματα είναι τοιούτου είδους, δεν είναι δυνατόν να κατανοηθούν παρά μόνον από οξείς εγκεφάλους και κατόπιν μακράς προσπάθειας και κατ' εκείνους τους χρόνους παρέμενον μεταξύ των φιλοσόφων και δεν ήσαν ολίγοι εκείνοι, οι οποίοι κατενόησαν τον λόγον της κινήσεως των αστέρων, όπως μας πληροφορεί ο Πλάτων. Αλλ' εάν ο λόγος ήτο γνωστός εις τον Φιλόλαον ή εις κάποιον των Πυθαγορείων, είναι πιθανόν να μην ανεφέρθη εις τους νεωτέρους, δεδομένου ότι οι Πυθαγόρειοι δεν συνήθιζον να καταγράφουν τα ζητήματα που τους απησχόλουν.

The fact that the paragraph of the manuscript has not been included in the printed version could be characterized by some as **plagiarism**, while others consider that not referring especially to Aristarchos is **lack of courage or fearfulness**. It is, however, fair to be emphasized that it is not absolutely verified that the omission of the paragraph above must be attributed to Copernicus himself or e.g. to the editor of the book, because the book was published after (soon, however) the death of Copernicus. It is also remarkable that Copernicus for more than ten years did not give his consent for the publication of his treatise, because he was afraid his condemnation by the Roman Catholic Church. Finally, in 1540 A.D., Rheticus, an admirer of Copernicus and Professor of Mathematics at the University of Wittenberg, managed in taking from Copernicus a copy of his manuscript, and with his consent, he published in Danzig **a preliminary report on the ideas of Copernicus**, under the title **Narratio Prima**.

In 1542 A.D. Copernicus sent the preface of his complete manuscript to Rheticus, dedicating the book to Pope Paul the 3rd, in which he wrote: *I understand that as soon as some will be informed that in my book I attribute some motions to the Earth, they will cry that I and my theory must be rejected.* Also he explained that he had agreed on the edition of his book being encouraged by others, and that the reason for publishing the book was the uncertainty in the mathematical methods

used for the determination of the motions of the celestial objects. Additionally, he appealed to the Pope for protecting him against the accusations of his libellers.

Finally, in 1543 A.D., Rheticus, who had close relations with an editorial company in Nuremberg, managed in publishing a copy of the manuscript of Copernicus under the title ***De Revolutionibus Orbium Coelestium***. *It is real, but this monumental work was condemned in 1616 A.D. by the Roman-Catholic Church of Rome as heretic*. The fact that Copernicus was very much afraid of the Roman Catholic Church becomes also transparent from the published book's preface written by *Andreas Osiander*, a well-meaning friend of Copernicus. He essentially wrote (I'm paraphrasing), *"Dear reader, when you look at this book, it may appear that the author is saying that the Earth is not at the center of the universe. He doesn't really believe that. You see, this book is for mathematicians. If you wish to know where Jupiter will be two years from next Wednesday, you get an accurate answer by assuming that the Sun is at the center. But this is a mere mathematical fiction It does not challenge our holy faith. Please, have no anxiety in reading this Book"*.

This peculiar split-brain compromise between conventional wisdom and new ideas actually lasted for almost two centuries!!!

Finally, it must be pointed out, that, as reported in the press, only about a couple of years ago, **in 2008**, some bones-relics of the scalp of Copernicus have been successfully identified, by DNA examinations, with a hair of Copernicus found in one of his manuscripts (also with reference to and use of a portrait of him). And it is even more remarkable that, **just three days ago**, these relics were officially placed just below the floor of the Fromborg Cathedral in Poland, thus, after five centuries, revealing a compromise of the Roman Catholic Church with the heliocentric theory.

4. Conclusion-Perspectives

According to all the above, ***Copernicus is not the introducer but only the renovator of the heliocentric theory. The paternity of this theory, exclusively and originally, belongs to Aristarchos***. One could only argue that the personal contribution of Copernicus is mainly that he introduced the geometric mechanism of Ptolemy's geocentric system to the heliocentric system of Aristarchos. But it is obvious that the whole effort was in a wrong way, because the real difficulty, namely, the faith that the planets move uniformly on circular orbits, could not be overcome. For the restoration and forwarding of this truth, it is necessary to inform people, in the broader possible way, on the work of Aristarchos and more generally of the ancient Greek astronomers-mathematicians-philosophers. **This is the purpose of the**

present text and suggestion. At this point I wish to repeat what the late Zdenek Kopal, Professor at the University of Manchester, well-known admirer of the ancient Greek civilization and warm friend of Greece, wrote: *“The first and essential steps that led to the definite formulation of a correct model of the solar system were made by Aristarchos of Samos in the 3rd century B.C. He declared the correct path, twenty centuries before this result of research become a permanent spiritual achievement of humanity. He lighted the first sparks of the divine fire that revealed our real position in space”.*

SUGGESTION

*In view of all the above, the ancient philosopher-astronomer-geometer-mathematician Aristarchos of Samos is the introducer, crier, and supporter of the radical in his time heliocentric theory. **The paternity of the heliocentric theory, exclusively and originally, belongs to Aristarchos of Samos, who founded Astronomy on the logical reasoning. His contributions, a couple of millennia ago, to science and technology, and, of course, to Cosmology and Astronomy and, especially, to our Solar System are all well-known, and have shaped contemporary science. All these contributions and, particularly, the heliocentric theory and the dynamics and physics of the Solar System are obviously in line with the interests of and of importance to HSF/HME.***

Therefore, Aristarchos of Samos is a historical character easily recognizable at both the European level and the international level.

For all the above reasons, we in Greece find important and natural to associate the name of the ATV-4 with Aristarchos of Samos, and we officially suggest this name to the Director of ESA/Human Spaceflight .

*Finally, at a quite personal level and as a necessary completion of the above arguments, I wish to say that I belong to those University teachers, who have devoted a lot of effort, time and sentiment in teaching, at both the under- and post-graduate levels, about, among others, the necessity of the scientific truth and the imperative necessity of its recognition in our life. So, in this context also, I emphasize that I strongly believe that it is always **our obligation** to the younger generations to give to them the correct example of the meaning of the real recognition of the contribution to, at least, the science, by always acknowledging and promoting the real scientific truth worldwide; and, as a natural consequence of all the above, I consider the anticipated approval of our suggestion as a **rewarding** for my life-long teaching effort towards this direction.*

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