Konstantin Balakiryan: Super Detector For Neutrinos "Beta-1AT"

Professor K.Balakiryan proposes a new strategy for studying solar and cosmic neutrinos.

PHOENIX, ARIZONA, USA, November 12, 2018 /EINPresswire.com/ -- The interest of physicists from all over the world is chained to the neutrino - the most mysterious and elusive particle of the micro world. Neutrinos practically do not interact with molecules of any substances, as they thoroughly pierce our planet. Can you imagine that while you were reading the first 7 lines of this press release, several billions of neutrinos flew through your body, yet you had no awareness of this occurring? Each neutrino carries a unique “biography” from when it was formed. If we could "catch” and measure their flow, then for example, solar neutrinos would tell us about the features of the processes that occur in the bowels of the Sun which provides life on our Planet. A neutrino flux of cosmic origin would reveal to us the secrets of astronomical phenomena both in our Galaxy and far beyond its limits, including such events as the birth of new stars, quasars, and black holes. Countries leading in scientific research which are very interested in studying neutrinos are building huge detectors and telescopes for detecting neutrinos in deep tunnels under the earth, under water, and in the ice of the Antarctic.

However, the effectiveness of these detectors is extremely low, at just 10-15 neutrino detection events per year. The reason for such rare detectable collisions of neutrinos with the nuclei of oxygen and hydrogen atoms in water is that all three known neutrino types: electron neutrino, moon neutrino, and tau neutrino, have an ultra-low interaction cross section. For neutrinos to be "noticed”, even with a very high (>10^15 eV) and extra high energy (>10^18 eV) in a detector with water filling, they must collide with the nucleus of and oxygen or hydrogen atom. As a result of this interaction, a muon is produced, which, continuing the motion exceeding the speed of light in the water, causes a luminescence, (Cherenkov radiation) recorded by photomultipliers. In order to increase the number of collisions in recent years, scientists have begun to increase the size of neutron detectors. In our view, this is an erroneous path, as with these efforts researchers do not observe significant changes to the amount of collisions However, the number of collisions of neutrinos with oxygen and hydrogen nuclei in water can be dramatically (hundreds or even thousands of times) increased due to the collective excitation of these atoms. To do this, first of all, the water volume of the neutron detector must be additionally saturated with oxygen and hydrogen atoms dissociated through electrolysis. In the process of electrolysis, direct current is first fed to special electrodes, resulting in the dissociation of water models, and then electrical pulses are fed to the same electrodes in a wide range of frequencies and amplitudes that contribute to the intense excitation of oxygen and hydrogen atoms.

The effect of the excitation of hydrogen and oxygen atoms in a neutrino detector is enhanced due to cavitation in the aquatic environment creating an ultrasonic generator.

For clarity, I will give an example entirely from another sphere. Many of you have probably seen children play a fussball table game. In order to protect their gates, a player very intensively moves his goalkeeper along the goal line, trying to close the space where the ball can go. Something similar happens with excited oxygen and hydrogen atoms, which in a certain volume of water create for the neutrino an almost “continuous obstacle” that becomes targets for them.

Based on the data of our experiments, we formulated the following hypothesis: “High-energy neutrinos colliding with the nucleus of an oxygen atom “break” it into 8 protons, 8 neutrons and 8 electrons that become part of a common electronic “cloud”. As is known, the lifetime of free neutrons is less than 15 minutes, more precisely, the half-life of neutrinos is 611 ± 0.8 s. This is the so-called beta decay, in which the spontaneous transformation of a free neutron into a proton occurs with the emission of electrons and electron antineutrinos. Then each proton “captures” one electron from the “cloud” and turns into a hydrogen atom. Thus, in the water volume of the neutrino detector, the number of hydrogen atoms whose nucleus is a proton increases noticeably.

Our hypothesis was fully confirmed by measurements of several independent companies that deserve the highest level of trust in the United States. (1. Air Kinetics, Inc.; 2. Horizon Air Measurement Services; 3. TRC Environmental Corporation)

According to the data presented by those three groups of independent researchers, the average indicator of the presence of hydrogen at the output of the Symphony-7A was 97%, about 2% nitrogen and practically proved the complete absence of oxygen — less than 1%. Whereas it is known that water contains only 11.19% hydrogen and 88.81% oxygen. This indicates that we created a hydrogen reactor in which a neutrino achieved a fantastic result that is of great importance for our civilization. By installing photomultipliers in this reactor, we could record hundreds of thousands of events revealing Cherenkov radiation occurring when neutrinos collide with protons.

This gave us the idea that it would be extremely interesting to conduct experiments on neutrino detection together with Japanese specialists. Since the Super-Kamiokande was built specifically to search for hypothetical proton decay, it would be highly beneficial for us to take part in solving this scientific problem with the help of the super neutron detector Beta-1AT. Utilizing the Beta-1AT would allow at least 2-3 orders of magnitude increase in the fixation of collisions of nuclei hydrogen atoms with cosmic and solar neutrinos.

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