

Dr. Sergey Sokhoyan's Message to Astrophysical Journal's Editor

Dear Colleagues!

Yesterday I became acquainted with Answers of A.Chilingarian on YerPhI Director's Commission questions and recommendations concerning situation in Cosmic Ray Division of Yerphi. In this connection I would like to express my opinion concerning Point 1 (see page 4), where it is written on report "Light and Heavy Cosmic Ray Mass Group Energy Spectra as measured by the MAKET-ANI detectors" as last achievement of our department on the MAKET ANI experiment.

My comments concerning this report have been sent to Astrophysical Journal's Editor at January 20, during the process of preparing of this report for publishing, and are given below.

Unfortunately, up to now I didn't receive any answer from Editor and this report was published in Astr. Journal Letters this year without taking into account any my objections concerning reliability of presented results. It is shown also in my report on 4-th quarter of Grant A757 (applied to this message), which was sent also to Editor. This report was presented to A. Chilingarian at August 12 of last year. He has paid me salary for this one from Grant, this is why he has known quite well about the problems of paper "Light and Heavy..." In spite of this A.Chilingarian done nothing for correction of results and has sent "Light and Heavy.." paper to Astr. Journal Letters for publishing.

Sincerely Yours,
Dr. Sergey Sokhoyan.

Dear Editor!

I'm working in the Cosmic Ray Division of the Yerevan Physics Institute started from 1975, and during the last 10 Years I have participated in the exploitation of the MAKET ANI experiment and data processing. Recently I came to know that a report "Light and Heavy Cosmic Ray Mass Group Energy Spectra as measured by the MAKET-ANI detectors" is planned to be published in Astrophysical Journal. As a participant of grant A757 ("Nonparametric Data Analysis in Cosmic Ray Astrophysics") and in agreement with the task given me by the manager of this project A.Chilingarian (for last 4-th quarter) I have carried out comparing analyses of Nonparametric and Parametric methods of E₀ determination used in MAKET ANI. The results are presented in my report that I send You. I would like to express my opinion concerning the main physical results presented in "Light and Heavy..." report mentioned above.

Unfortunately, as You will see from my report, the use of the Neural Network method in E₀ determination results not only in shortening of energy range reached by MAKET ANI (because of large methodical errors in ranges around threshold ($\sim 5 \times 10^{14} \text{eV}$) and at

largest energies above the knee), but also distorts the Eo-spectrum shape with increasing zenith angles: for example, "Light" spectrum intensities from vertical to 45° at 10^{15} eV differed by a factor of ~ 3 (three). A disagreement in the spectrum slopes below and above knee with Theta is observed too, and the spectrum constructed using all statistics with $\Theta < 45^\circ$ is unreliable. The spectra normalization also is mistaken.

"Light" and "Heavy" spectra obtained in A.Chilingarian et al. report were obtained in the same Theta range, and by this reason these principally are different from spectra presented in my report.

I have used the same statistics. Essential differences are observed not only in spectra slopes, but it is obvious also from my results that a "inverse" knee exists in the Heavy Spectrum. This is in contradiction to the first conclusion of A.Chil.-report.

The main results of the "Light and Heavy..." report were obtained by

A.Vardanyan. During our joint stay in Karlsruhe (KASCADE) in November of last year I had discussions with him around these problems, and we had an agreement to continue these investigations, to have further discussions and to held a final seminar on these topics, and only after this we planned to submit the results to a Journal.

Unfortunately all of these were not done, and this report have been sent to Astr.Journal without any further discussions with me and my agreement. To my opinion, the results presented by A.Chilingarian et all. are raw, unreliable, and therefore aren't ready for immediate publishing. Moreover they are expected to be in contradiction with results of our future publications on MAKET ANI, which we are preparing now.

Sincerely Yours,
Dr.Sergey Sokhoyan.